

IN THE UNITED STATES BANKRUPTCY COURT  
FOR THE SOUTHERN DISTRICT OF TEXAS  
HOUSTON DIVISION

BRAZOS ELECTRIC POWER	§ CASE NO. 21-03863-ADV
COOPERATIVE, INC., ET AL	§ JOINTLY ADMINISTERED
	§ HOUSTON, TEXAS
VERSUS	§ FRIDAY,
	§ FEBRUARY 25, 2022
ELECTRIC RELIABILITY	§
COUNCIL OF TEXAS, INC.	§ 9:00 A.M. TO 12:15 P.M.

BENCH TRIAL DAY FOUR (MORNING SESSION ONLY)

BEFORE THE HONORABLE DAVID R. JONES  
UNITED STATES CHIEF BANKRUPTCY JUDGE

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(Recorded via CourtSpeak)

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1                   HOUSTON, TEXAS; FRIDAY, FEBRUARY 25, 2022; 9:00 A.M.

2                   THE COURT: Good morning, everyone. The time is  
3                   9:00 o'clock Central. Today is February the 25th, 2022. This  
4                   is the Docket for Houston, Texas. We have this morning  
5                   continued trial in Adversary No. 21-3863, Brazos versus ERCOT.

6                   As always, please make your electronic appearance.  
7                   Don't forget to do that, that's very important. First time  
8                   that you speak, if you would, please state your name and who  
9                   you represent and we will continue the process.

10                  And haven't heard any negative feedback. I assume  
11                  that transcripts are flowing and that access to the CourtSpeak  
12                  file is at least of some assistance. I haven't heard anything  
13                  negative.

14                  And theoretically we'll have air conditioning today.  
15                  Anybody's guess.

16                  I do want to say a couple of things. Number one, to  
17                  the folks in the media who downloaded the CourtSpeak  
18                  yesterday, I appreciate all the effort. Just so full  
19                  disclosure, I had one ZOOM call yesterday evening to try and  
20                  assist somebody understand how to get something off of PACER.  
21                  I'm happy to try and help make sure that people have access.  
22                  But I appreciate the effort that was put forth.

23                  Did we ever make any progress on our, I'm going to  
24                  call it the \$700 million stipulation? We talked about it  
25                  first day. I hadn't heard anything about it since, but it

1       hasn't fallen off my radar.

2               MR. MENDIOLA: Yes, Your Honor. Lino Mendiola on  
3       behalf of the Debtor. We are working on it. We've been in  
4       discussions with ERCOT. We are very close on numbers. And,  
5       you know, I can't say that -- exactly where we are, but we are  
6       working on it and we're very close. At least with respect to  
7       the number, we're very close.

8               THE COURT: Got it. And again, you know, I'm not  
9       fully appreciate why this is so hard. ERCOT agree that we are  
10      at least making progress on understanding what the floor is?

11              MR. ALIBHAI: I have not -- Mr. Clark.

12              THE COURT: I am so sorry. I just always look at  
13      you.

14              MR. ALIBHAI: No, that's okay. We talked about it  
15      today. I haven't heard anything in two days, so I don't know  
16      if Mr. Clark heard something different, but --

17              THE COURT: Got it.

18              Mr. Clark, good morning.

19              MR. CLARK: Good morning, Your Honor. Elliot Clark  
20      on behalf of ERCOT. It's nice to meet you.

21              THE COURT: Nice to meet you as well.

22              MR. CLARK: Mr. Trahan and I have talked a couple of  
23      times.

24              THE COURT: Okay.

25              MR. CLARK: And I understand they're, you know,

1 sharpening their pencil on the numbers and we're hopeful.

2 THE COURT: Okay. All right. And so --

3 MR. CLARK: So we are making progress. That's  
4 really all I can report.

5 THE COURT: Got it. And are we -- and so we're -- I  
6 just want to know what I can anticipate getting, assuming that  
7 we can figure out the nickels. Is if I'm going to get a  
8 number that ERCOT believes at minimum -- I'm sorry, ERCOT --  
9 that the Debtors believe that they owe and a breakdown into  
10 one of three time periods. Is that where we were, Mr. Trahan?

11 MR. TRAHAN: That is where we are.

12 THE COURT: Okay. All right.

13 MR. TRAHAN: And I think we're in general agreement.  
14 I think there's agreement the number is 762 and I think  
15 there's agreement generally on what the number is before the  
16 period, we'll call it, and then after the period. After the  
17 \$9,000 period and before. I think we're dangerously close.

18 THE COURT: All right. And so are we -- so am I  
19 only going to get two breakdowns or am I going to get from the  
20 start to -- well, I should try -- I shouldn't try and dictate  
21 that. What I'm really interested in is that is understanding  
22 the midnight number. So am I going to get that?

23 MR. TRAHAN: You're supposed to get four numbers,  
24 Your Honor.

25 THE COURT: Four numbers, okay.

1 MR. TRAHAN: A total, the number up till Monday  
2 night when the PUC order went into effect.

3 THE COURT: Okay.

4 MR. TRAHAN: Or was implemented.

5 THE COURT: Okay.

6 MR. TRAHAN: The time from the implementation of the  
7 order till that 9:00 o'clock time on Friday morning. The time  
8 thereafter, but I think Your Honor is asking for the time from  
9 midnight on Wednesday night to Friday morning to be broke out  
10 separately.

11 THE COURT: Or I mean, you know, yes, that would be  
12 helpful.

13 MR. TRAHAN: Okay. So we will try to do five  
14 numbers to get the total.

15 THE COURT: All right. Well, you don't have to --  
16 I'll take four 'cause I promise you I can do the math on the  
17 fifth. I'm joking.

18 (Laughter.)

19 MR. TRAHAN: So because it's by hour it's a little  
20 bit more complicated.

21 THE COURT: It's Friday. I was just trying to have  
22 a little fun. I'm sorry. I will take whatever help I can  
23 get. That would be terrific.

24 MR. TRAHAN: Understood.

25 THE COURT: All right. Thank you, gentlemen, for



1 continuing to work on it.

2 All right. Anything else we need to talk about  
3 before we get started this morning?

4 MR. BOLDT: Your Honor, Michael Boldt for the  
5 Debtor.

6 THE COURT: Yes, sir.

7 MR. BOLDT: Just one housekeeping item.

8 THE COURT: Sir.

9 MR. BOLDT: The Debtor has refiled Plaintiff's  
10 Exhibit 160A at Docket 476.

11 THE COURT: So hold on, let me catch up with you.

12 MR. BOLDT: Sure.

13 THE COURT: Okay.

14 MR. BOLDT: It was previously Plaintiff's  
15 Exhibit #160.

16 THE COURT: #160. All right, so that's now 476.

17 MR. BOLDT: Yes, Your Honor. And we just redacted  
18 some personal information from one ERCOT's assistant general  
19 counsel.

20 THE COURT: And I assume you shared that with ERCOT  
21 and if that's all that has occurred I'm assuming that's  
22 welcome. Is that...

23 MR. CLARK: Your Honor, I emailed it to Mr. Boldt  
24 last night after midnight and he graciously filed it this --  
25 or said he agreed this morning at 6:15. And so we're all

1 good.

2 THE COURT: You guys are doing this after midnight?  
3 I really do encourage the rodeo this evening.

4 (Laughter.)

5 MR. CLARK: I'll be sleeping this evening, but,  
6 yeah.

7 THE COURT: Understood. All right.

8 MR. BOLDT: Thank you, Your Honor.

9 THE COURT: Thank you.

10 Anything else?

11 (No audible response.)

12 THE COURT: All right. Mr. Alibhai?

13 MR. ALIBHAI: Mr. Maggio is the first witness and  
14 Mr. Clark is going to handle that examination.

15 THE COURT: Great. Terrific. So, Mr. Clark, I've  
16 been waiting with anticipation. Don't let me down.

17 MR. CLARK: Oh. Well, hopefully, I don't disappoint  
18 you, Your Honor.

19 Again, Elliot Clark on behalf of ERCOT.

20 THE COURT: All right. Thank you.

21 Mr. Maggio, good morning, sir.

22 MR. MAGGIO: Good morning.

23 THE COURT: If you would raise your hand, please?

24 (Witness sworn.)

25 THE COURT: All right. Thank you, sir.

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DIRECT EXAMINATION OF DAVID MAGGIO

BY MR. CLARK:

Q Good morning, sir. Can you tell us your full name?

A Sure, my name is David Maggio.

Q Mr. Maggio, how are you employed?

A I'm an employee at ERCOT.

Q And what is your title at ERCOT?

A I'm director of market design and analytics.

Q And can you just give us a brief rundown of your educational background?

A Yes. I went to the University of Illinois, Urbana-Champaign where I got my bachelors in 2004 and my masters in 2006.

Q In what area of study?

A In electrical engineering.

Q Where did you grow up?

A I grew up in the City of Chicago.

Q And then after you finished your education can you give us just a brief walk through of your professional experience?

A Yes. I started my professional career at ERCOT in 2007 right after I finished my degree. And I started as an entry level engineer where I was primarily focused on load forecasting at the time, as well as looking at our ancillary services. I then got engaged also in looking at renewable integration and then we started doing forecasting of wind

1 right around then. Around 2010 when we were doing our  
2 transition to the (indiscernible) market I switched over to be  
3 in our market operations area where I've kind of had a variety  
4 of positions in that department. I started as, again, an  
5 engineer looking at the -- trying to find ways to find  
6 convergence between what we were doing in our control room and  
7 looking at the markets. I then transitioned into being a  
8 manager of (indiscernible) revenue rights option which is one  
9 of the components of the wholesale electricity market. And  
10 then in around 2016 I've been in some form or fashion of my  
11 current role, although the title has changed.

12 Q So you've been a director since 2016?

13 A No, I became a director just a couple of years ago.

14 Q Okay. And what are your duties as the director of market  
15 design and analytics, just generally?

16 A So there's, I guess, two main components to what my  
17 department does. One of the groups is called market  
18 validation and they're focused on sort of the day-to-day  
19 validation of market outcomes. They would investigate if  
20 there were any sort of pricing concerns that needed to be  
21 addressed. And would also potentially if we found anything  
22 that needed to be corrected, they would perform those price  
23 corrections.

24 The other main component of my job is looking at  
25 more trends in the market and potential changes that either

1 ERCOT is proposing or market participants may be proposing to  
2 sort of work through what that may mean to market outcomes,  
3 what we may need to change in terms of the software changes or  
4 things of that nature. As well as helping with development of  
5 the rules and actually testing of the software as those  
6 changes go through the systems.

7 Q And who do you report to, Mr. Maggio?

8 A I report to Kenan Ogelman.

9 Q And roughly how many people are on your teams that report  
10 up to you?

11 A There's just under 20 folks in my department.

12 Q Do you know how real-time settlement point price are  
13 determined by ERCOT?

14 A Yes, I do.

15 Q And does ERCOT teach classes on that?

16 A There are courses that we teach, yes.

17 MR. CLARK: Can we pull up Defendant's Exhibit #313,  
18 please?

19 BY MR. CLARK:

20 Q What is Defendant's Exhibit #313, Mr. Maggio?

21 A This is a training that we do on the wholesale market  
22 operations. And this particular deck is focused on the real-  
23 time market.

24 MR. CLARK: Your Honor, I move to admit Defendant's  
25 Exhibit #313, which is at Docket No. 407-5.

1 THE COURT: Thank you.

2 Any objection?

3 MR. ALIBHAI: No objection, Your Honor.

4 THE COURT: All right, thank you. It's admitted.

5 (DX-313 received in evidence.)

6 MR. CLARK: Can we go to page 69 of DX-313, please?

7 Thank you.

8 BY MR. CLARK:

9 Q Just generally speaking, Mr. Maggio, what are real-time  
10 settlement point prices?

11 A Well, real-time settlement point prices are really a  
12 combination of three different pricing components. There's  
13 the LMP that are a function of SCED. That's where we do the  
14 actual dispatch of the system. And that would determine  
15 locational marginal prices by their name that we may see  
16 prices sort of varying across the system, depending if there's  
17 transmission congestion.

18 And then the other two components are two price  
19 adders. One is related to the operating reserve demand curve  
20 or ORDC that values reserves on the system. As well as a  
21 second process we have for looking at the impact of any sort  
22 of reliability deployments that ERCOT may have done. And  
23 that's in here listed as that extra SCED.

24 And it's those three components that would total up  
25 to the -- the real-time settlement point price.

1 MR. CLARK: Your Honor, may Mr. Alibhai approach?  
2 I've neglected to give Mr. Maggio a binder.

3 (Comments off the Record.)

4 THE COURT: I want to see you just direct him. Just  
5 tell him. And just say would please take that to the witness.

6 MR. CLARK: Mr. Alibhai, please give that to  
7 Mr. Maggio.

8 (Laughter.)

9 THE COURT: Mr. Alibhai, thank you, sir.

10 MR. ALIBHAI: Only when the Judge tells me to.

11 THE COURT: Ah.

12 MR. CLARK: All right. Thank you.

13 BY MR. CLARK:

14 Q Okay. Mr. Maggio, so you have a binder in front of you.  
15 So throughout the day if you need to refer to the hard copy or  
16 you can look at the screen, okay? That's for your  
17 convenience.

18 But I want to focus on the top part of page 69 of  
19 Defendant's Exhibit #313. Just the energy offer system needs  
20 and SCED and then going to the right for now. Okay?

21 A Sure.

22 Q So what are energy offers?

23 A So energy offers would be offers from any of the  
24 participating resources that we would have on the grid. I  
25 guess at any specific time not necessarily every generator or

1 other resource that we have would necessarily be available.  
2 So it's really for the generators that are online already,  
3 what is their offering to provide energy to try and meet  
4 demand on the system.

5 Q And what is -- what are system needs referred to here on  
6 Defendant's Exhibit #313?

7 A System needs would be referring to really the grid  
8 conditions that we're seeing at that exact moment in time.  
9 That would include the level of load that we have on the  
10 system, as well as if there's any concerns of transmission  
11 constraints. That information also would be fed into SCED so  
12 that it could be considered as part of the optimization.

13 Q And you've already mentioned SCED, which is right there  
14 in the middle of the top of the page 69 of Defendant's  
15 Exhibit #313. What is SCED?

16 A So SCED is really referring to the optimization itself.  
17 So it's what's actually taking in all those inputs and coming  
18 up with a calculation. And it's doing that every five  
19 minutes. But essentially it's trying to say with these system  
20 conditions and these offers that are out there on the grid,  
21 what should the dispatch be and what are the associated prices  
22 managing all those system needs and knowing what resources are  
23 available.

24 Q And is that indicated by the blue arrows there that go to  
25 the right and have base points and LMP?



1 A Correct. So, yeah, there's information feeding in and to  
2 the left that goes into the optimization and the primary  
3 outputs of that optimization are the base points and LMP.

4 Q And what are the base points?

5 A So the base points would be for all those resources that  
6 I mentioned that are available and participating in the  
7 dispatch at that specific point in time, it'd be an actual  
8 instruction for where the system needs them to go in the next  
9 five minutes.

10 Q When you wrote, "Where the system needs to go," what does  
11 that mean?

12 A I would be an actual instruction to a generator. So, for  
13 example, if a generator may be sitting at 80 megawatts and  
14 load has increased slightly, so we want that generator to go  
15 to 85 megawatts. There would be an instruction to say where  
16 you're at, go to 85 from you're at right now.

17 Q And what are LMP?

18 A And LMP are really the prices associated with those  
19 instructions. And again, they'd be locational (indiscernible)  
20 and if there's any sort of congestion on the system you'd see  
21 some difference in pricing. But I guess there's really two  
22 main components to the LMP.

23 There's what we call the System Lambda, that's the  
24 component of the price associated with just meeting the power  
25 balance. Meeting the demand I guess is another way to say it.

1 And then there's the congestion component of the LMP.

2 Q You anticipated my next question, which is what is System  
3 Lambda because we're going to be talking about that later.

4 But is it -- So how many System Lambdas are there?

5 A There's just one System Lambda.

6 Q And how many LMPs are there?

7 A Because of the variance in the potential congestion  
8 there's up to or can be up to 700-plus different LMPs across  
9 the system.

10 Q So what is it that SCED is solving for?

11 A So SCED is trying to meet the demand on the system,  
12 recognizing all the transmission constraints. So it's trying  
13 to say can -- how can I best in the most cheapest way meet the  
14 load without overloading things going on in the transmission  
15 system.

16 Q And it does that every five minutes; is that I heard you  
17 say?

18 A That's correct.

19 Q And what is the starting point to get to a SCED solution?

20 A I mean the starting point is really going to the left of  
21 the grid conditions themselves. So what do we see going on in  
22 the transmission system, what is the load at that specific  
23 time, and then starting to work with the generator offers that  
24 we have.

25 MR. CLARK: Your Honor, I have a demonstrative

1 board. May I put it up?

2 THE COURT: Of course.

3 (Mr. Clark displays demonstrative board.)

4 MR. CLARK: And there should have been, Your Honor,  
5 in your binder, if anyone wants a paper copy, Your Honor, in  
6 the front.

7 THE COURT: Thank you.

8 BY MR. CLARK:

9 Q So, Mr. Maggio, I have a demonstrative up here on the  
10 board in front of you. Is that sort of summarizing what you  
11 were just talking about as to what SCED is doing?

12 A Yeah, I'd say that's a simplified version of what the  
13 grid is looking like and what the SCED would be trying to do.

14 Q And so --

15 MR. CLARK: May I approach the board, Your Honor?

16 THE COURT: Certainly.

17 BY MR. CLARK:

18 Q So if we wanted to go back to what you were saying as to  
19 the starting point, is this the starting point here, the load  
20 that SCED is solving for?

21 A That would be the load that SCED is trying to solve.  
22 That'd be one of those system needs.

23 Q And then you have three examples of energy offers here.  
24 But how many are there in (indiscernible)?

25 A There's between 6- and 700 resources.

1 Q And SCED looks at everybody's offer, determines how much  
2 it needs, and then pulls megawatts from those resources in the  
3 cheapest manner possible?

4 A Right. It's looking at those energy offers and trying to  
5 find the cheapest solution.

6 Q And how can system constraints change the solution?

7 A So, for example, in the demonstration here or the example  
8 here the cheapest unit is in the bottom left. And so, to some  
9 degree if there was some sort of restriction between what's  
10 labeled as resource node two in the hub, such that really all  
11 that generation wasn't available, SCED would have to go find  
12 one of the other resources to get those megawatts and would  
13 presumably increase the total price of the system.

14 Q So if something happened on a transmission line that  
15 impeded the flow of 200 megawatts that's moving along that  
16 line down to 100 megawatts, what would happen to the price?

17 A So that's when you start to see some of that price  
18 separation. So there'd be a separate lower price there for  
19 resource node 2. And you'd see higher prices for both the  
20 load as well as the other resource nodes on the system.

21 Q And what causes those kind of constraints?

22 A It's really just the physical nature of the transmission  
23 lines themselves. So there's limits in terms of how much  
24 energy that can flow across them before they start to get hot  
25 and sag and things of that nature.

1 Q How does ERCOT know how much energy a market participant  
2 has purchased?

3 A So the -- in terms of how we measure that in real-time,  
4 there are meters that we have throughout the system. And  
5 those would be associated with a specific market participant.  
6 And those would be polled and measured, and that's how we do  
7 that calculation, at least for the real-time purposes.

8 Q Mr. Maggio, did you -- Well, I know you were on the phone  
9 and the Judge gave you an instruction at the beginning of the  
10 trial. Do you remember that?

11 A I do.

12 Q But did you listen to the opening statements?

13 A I did.

14 Q And did you hear Brazos' counsel say during opening that  
15 whatever happens after SCED will not affect ERCOT's dispatch  
16 instructions?

17 A I did.

18 Q And is that technically true?

19 A Yes.

20 Q But for how long is that true?

21 A That's really specific to that five-minute window of time  
22 that SCED is running.

23 Q And then Brazos' counsel suggested that applying an adder  
24 will not have an effect on getting generation online. Do you  
25 agree with that statement?

1 A No.

2 Q Why not?

3 A Well, the intent of the prices in general, as well as the  
4 price adders is to the degree you start to see high prices and  
5 things are able to respond. So, for example, if the generator  
6 was online -- I'm sorry, if the generator is offline and not  
7 yet running, the intent of those higher prices is to encourage  
8 people to make an additional commitments and start making  
9 decisions on their own.

10 MR. CLARK: Let's go back, please on the screen, to  
11 DX-313 at page 69.

12 BY MR. CLARK:

13 Q Mr. Maggio, I want -- I now want to talk to you about  
14 this, the bottom portion of this diagram we have on DX-313.  
15 And let's start with the ORDC at the bottom. What is the  
16 ORDC, Mr. Maggio?

17 A The ORDC, again, is the operating reserve demand curve.  
18 It is actually a curve in the system that we use. And the  
19 intent of it is to try to reflect the value of reserves as  
20 they're decreasing.

21 Q And how does that affect price?

22 A It would be an increase to the price as -- it's a  
23 function of the reserves. And as you see reserves increase or  
24 decrease, that would tend to created a -- the lower the  
25 reserves, the higher adder you would see on the system.

1 Q Is the ORDC in the protocols?

2 A It is discussed in the protocols, although the  
3 methodology is primarily discussed in another binding  
4 document.

5 Q We'll talk more about that later.

6 MR. CLARK: Can we focus on the reliability  
7 deployments part of DX-313? Thank you.

8 BY MR. CLARK:

9 Q Mr. Maggio, what is the RDPA?

10 A So there is a, essentially a second process where we run  
11 SCED a second time. And the intent of this is to -- we're  
12 running the same optimization, but really with change inputs.  
13 And the intent is to essentially create a -- sort of a "but  
14 for" condition of what would the pricing have been if these  
15 reliability deployments hadn't taken place. And there's sort  
16 of a number of inputs that we change to try to account for  
17 those reliability deployments.

18 Q And I said RDPA. I know there's a lot of acronyms at  
19 ERCOT, more than I have ever seen. But what is RDPA?

20 A Sure. Yeah, it's the -- RDPA is the reliability  
21 deployment price adder.

22 Q Thank you.

23 And how does it affect price?

24 A So it -- like the, sort of like the ORDC it is a -- it is  
25 the second of the two price adders. So it would be an

1       increase or something on top of the LMPs that would go into  
2       the final settlement point prices.

3       Q       Is the RDPA in the protocols?

4       A       It is.

5               MR. CLARK: Can we pull up Defendant's Exhibit #2?  
6       And, Your Honor, that's Docket 406-2. And we'll be looking at  
7       page 328 of 478.

8               THE COURT: Thank you.

9       BY MR. CLARK:

10       Q       Do you see on the screen there, Mr. Maggio, protocol  
11       section 6.5.7.3.1?

12       A       I do.

13       Q       And what is that?

14       A       That is the specific protocol that talks about how we  
15       change some of those inputs in order to calculate that  
16       reliability point price adder.

17       Q       And can you briefly run us through each of the different  
18       adders listed there from A to H and sort of explain to us  
19       generally what they are?

20       A       Sure. So the first one is referring to the reliability  
21       unit committed resources. So that's the RUC process. And  
22       that refers to this condition in which a owner or  
23       representative for a power plant doesn't intend to run their  
24       power plant. ERCOT can reserve the right to order them to be  
25       online. And that's referred to as the reliability unit



1 commitment.

2 Q Is that what some people call RUC?

3 A Yes. That is the -- one of our many acronyms, as you  
4 mentioned before.

5 Q And what about B?

6 A So B is sort of a separate thing. And RMR refers to a  
7 reliability must run resource. There is this condition under  
8 which a plant decides to or would like to retire or go into  
9 what's called a moth ball status. And ERCOT has an option to  
10 contract with those resources if there's a reliability need.  
11 Specifically some of those local transmission needs that we  
12 talked about that only that resource can solve. And so, we  
13 can contract with that resource and essentially pay them and  
14 largely keep them out of the market, but they receive sort of  
15 contracted amount as opposed to be participating  
16 competitively.

17 Q And what about C, deployed load resources?

18 A So that is one of the types of resources that provides  
19 ancillary services, is load resources. And so this is just  
20 one of the things that gets included is when we deploy those  
21 resources when they're providing ancillary services. That's  
22 deemed as the reliability deployment that is accounted for in  
23 this price adder process.

24 Q And then E and F have to do with the DC tie. Can you  
25 explain what those are?

1 A Yes. So in the case of E this is an example where there  
2 -- I guess in general folks are able to schedule over the DC  
3 ties. And that's based on differences in pricing that we may  
4 see between sort of the two areas. Regardless of pricing  
5 similar to the reliability unit commitment ERCOT can, through,  
6 I guess, arrangement with the other jurisdiction request  
7 emergency delivery from that other system. And that's what  
8 really being referred to in Column E. After that is sort of  
9 the inverse of that. So we actually are somewhat -- Southwest  
10 Power Pool, for example, one of our neighboring grids, makes a  
11 request for emergency power. They can do that and that  
12 actually gets accounted for the other way within the price  
13 adder process.

14 Q And then G and H talk about block load transfers. What  
15 are those?

16 A There are some fairly minimal points in the system where  
17 a load can actually connect to either of two grids. And so  
18 when we are getting into an emergency, if to degree it's  
19 available, one of the things that we can request is to do a  
20 transfer of the load between those two grids. So they would  
21 actually disconnect from our system and connect to the other,  
22 or vice versa, depending on the type of request.

23 Q DX-2 has already been admitted, Mr. Maggio, but I'll  
24 represent to you it is the version of the protocols that was  
25 in effect in February of 2021. Can you recognize that from

1       what you see here?

2       A       Yes, that looks correct.

3       Q       And I don't see in Section 6.5.7.3.1 of the protocols in  
4       effect in February of 2021, ERCot directed firm load shed.

5       A       That's correct.

6       Q       Has that changed?

7       A       It has.

8       Q       What would happen to energy prices if ERCot instructed  
9       firm load shed tomorrow?

10      A       The ORDC and the price adders would combine to make the  
11      total price at the value of the loss load.

12      Q       So is firm load shed in the protocols in 6.5.7.3.1 today?

13      A       Yes, it was added to this particular list.

14      Q       Did you and your team understand during Winter Storm Uri  
15      -- Let me start over.

16               Did you understand during Winter Storm Uri,  
17      Mr. Maggio, that firm load shed -- ERCOT directed firm load  
18      shed was not included in protocol section 6.5.7.3.1?

19      A       I did understand that.

20      Q       Okay.

21               MR. CLARK: Can we bring up Defendant's Exhibit 462?

22               And Your Honor, that is Docket No. 408-23.

23               THE COURT: Thank you.

24      BY MR. CLARK:

25      Q       What is Defendant's Exhibit 462?

1       A       This was a presentation that I gave, along with one of  
2       the members of my team, at the time, this was an educational  
3       thing that we did as part of an annual seminar that ERCOT  
4       holds. And this one was specifically an education looking at  
5       the operating reserve demand curve and the reliability point  
6       price setting process.

7               MR. CLARK: Your Honor, we move to admit Defendant's  
8       Exhibit 462?

9               THE COURT: Any objection?

10              MR. ALIBHAI: No objection.

11              THE COURT: It's admitted.

12              (DX-462 offered and received in evidence.)

13       BY MR. CLARK:

14       Q       Let's go to Slide 10 of Defendant's Exhibit 462. You're  
15       familiar with this Slide?

16       A       I am.

17       Q       Well I think you said a moment ago, you prepared or  
18       helped prepare this presentation, right?

19       A       Yes.

20       Q       Can you explain the third bullet point on Slide 10 of  
21       Defendant's Exhibit 462, please?

22       A       So this was sort of talking about the introduction to the  
23       operating reserve demand curve and why we had it in place.  
24       And the point of that third bullet was talking about the fact  
25       -- and this was a concern in why we looked to implement the

1 operating reserve demand curve -- is just the notion that the  
2 system prices should reflect the value of reserves as things  
3 are getting tight, including to the condition that we would  
4 actually get to load shed.

5 Q Does the depiction to the right of the bullet points on  
6 Slide 10 of Defendant's Exhibit 462 show prices that can come  
7 out of SCED regardless of adders?

8 A Yes. So there was -- I guess two sort of points are  
9 parts of this particular graphic. First was just showing that  
10 regardless of whether or not there was OREC just coming out of  
11 the SCED dispatch component that we were discussing earlier,  
12 that prices could go to that highest level even before seeing  
13 the -- or running the process to determine what the price  
14 adders were.

15 Q What does it mean if SCED goes to VOL by itself?

16 A It just really means that, that's the value of energy at  
17 that time and it's being driven by sort of either two things.  
18 One it's being driven by an actual offer by a generator as we  
19 -- VOL is also used as an offer cap, so generators are able to  
20 offer in at that level. It also may mean that we simply don't  
21 have enough generation to be dispatched at that particular  
22 point in time to meet that system demand that we have.

23 Q I did it again, what is VOL ?

24 A VOL is the value of lost load.

25 Q Okay. Thank you. Did SCED go to VOL by itself during

1 winter storm URI?

2 A It did.

3 Q Can we go to Slide 15 of Defendant's Exhibit 462? What  
4 does it mean -- I'm looking at the bottom bubble there,  
5 Mr. Maggio, what does it mean in your presentation where you  
6 say the value of real time reserves equals the value of  
7 avoiding load shed?

8 A So this was sort of intended to be a graphic highlighting  
9 something similar to the message of the third bullet on the  
10 previous Slide we were looking at. And so it was sort of  
11 recognizing that trying to think of how you conceptually  
12 describe the value of reserves. And so the idea is reserves  
13 are specifically defined or they're procured to help us avoid  
14 firm load shed. And of course there is -- that's something we  
15 want to do. Probably fairly obvious. So when we think about  
16 how valuable reserves are, that should be a function of how  
17 much they -- how much we have and how much they're helping us  
18 avoid getting into that firm load shed condition?

19 Q Can we go to Slide 16 of Defendant's Exhibit 462? Are  
20 you familiar with this depiction on Slide 16 of Defendant's  
21 Exhibit 462?

22 A I am.

23 Q And what is it?

24 A That is an illustrative picture of what the ORDC looks  
25 like.

1 MR. CLARK: Your Honor, may I put up another  
2 demonstrative?

3 THE COURT: Certainly.

4 BY MR. CLARK:

5 Q Mr. Maggio, I think we've heard a lot and we're going to  
6 hear a lot about the ORDC curve, is that what we see in  
7 Defendant's Exhibit 462 at page 16?

8 A Yes. That is an illustrative description in the graphic  
9 here of what the ORDC looks like.

10 Q And why should reserve prices be based on VOL and the  
11 probability of load shed?

12 A So the value of lost load is intended to be a proxy for  
13 how much and how, you know, sort of a typical consumer would  
14 be willing to spend. And so the idea as we came up with this  
15 was to -- essentially behind us a bunch of statistical  
16 analysis that shows or comes up with a -- given a certain  
17 level of reserves and looking at historical data in terms of  
18 the fact that units might trip or that there's error in our  
19 forecast. With a certain level of reserves, what's the  
20 probability of getting into that bad condition we don't want  
21 to be in with firm load shed. And the closer -- the less  
22 reserves we have the higher that potential is. And so you can  
23 see there that essentially as the reserves decrease the price  
24 increases and eventually goes to that value that reflects or  
25 that proxy for what consumers would be willing to spend is

1       that value of loss.

2       Q       And the ORDC curve depiction we have here on DX-462 at  
3       page 16, says VOL is administratively set to \$9,000 per  
4       megawatt hour. What does that mean?

5       A       That is a reference that's not determined by our  
6       stakeholder process. It is a set value that's given to us by  
7       the Public Utility Commission.

8       Q       It's part of a PUC rule?

9       A       Part of the exception to rule 25 505.

10               THE COURT: If you decided that -- you've got that  
11       trigger pointed at 2,000 megawatt hours -- if you decided you  
12       wanted that number to be 3,000 or 4,000, does the curve just  
13       shift to the right and maintain it's characteristics or does  
14       something else happen to the curve?

15               THE WITNESS: It really ends up just being a shift  
16       to the right.

17               THE COURT: Okay. And what does the computer do?  
18       Does it recognize that shift, or does that cause a problem?

19               THE WITNESS: It's just a change in the parameters,  
20       so in the actual math itself you would tell it that the  
21       parameter is 3,000, for example, instead of 2,000.

22               THE COURT: So if you're sitting in an unprecedented  
23       situation and you're trying to take a conservative approach an  
24       you go, eh, in this set of circumstances 2,000 doesn't fit the  
25       situation, I want to change it to 4, can you just sit down at



1 a terminal and do that?

2 THE WITNESS: Mathematically we can. I guess  
3 similar to the value of loss load, this is something that has  
4 been dictated by th Public Utility Commission of what that  
5 value should be so. So there's rule around what that value  
6 is, but it is as simple as changing a number in a --

7 THE COURT: Got it.

8 THE WITNESS: -- in a computer.

9 THE COURT: But you can't change it without a  
10 specific order from the PUC?

11 THE WITNESS: No. We can't change it.

12 THE COURT: Okay. So I just want to make sure that  
13 you and I are on the same page. That means in order to change  
14 it, you may want to do it, but you can't do it without a  
15 specific order from the PUC?

16 THE WITNESS: Correct. And in fact we just got an  
17 order from them that, that became effective the start of the  
18 year they actually did a shift exactly like you're describing.  
19 Where it would change form 2,000 to 3,000 in terms of where  
20 that jump occurs, as well as they changed the value of lost  
21 loads as part of that --

22 THE COURT: Okay. Thank you.

23 Sorry for the interruption.

24 BY MR. CLARK:

25 Q So to follow up on what you were just discussing with,

1 Your Honor, the new operating demand curve has --

2 MR. CLARK: May I approach the board, Your Honor?

3 THE COURT: Of course.

4 BY MR. CLARK:

5 Q -- has the point at which prices got VOL at 3,000  
6 megawatts of reserves?

7 A That's correct.

8 Q And so if the previous reserve curve didn't kick up to  
9 VOL until 2,000 and now it kicks in at 3,000 is it going to  
10 happen more or less often?

11 A It would happen more often.

12 Q And the PUC determines to change that, correct?

13 A Correct.

14 Q And what else did they change?

15 A They also changed the value of lost VOL itself. So at  
16 the time and you can see it on this graphic it was \$9,000 per  
17 megawatt hour. It has since been changed starting January 1st  
18 of this year to \$5,000 per megawatt hour.

19 Q So they've administratively set the value lower but the  
20 reserve higher?

21 A Right. So the curve effectively shrunk by four ninths  
22 and then was shifted to the right.

23 Q So it could happen more often, but at a lower price?

24 A In general the price would be, I guess, lower. Well I  
25 guess, it would vary for a very specific level of reserves

1       that I think it would be higher until you got to that value of  
2       lost load type level.

3               THE COURT: And if you wanted a change, and I say  
4       you -- if ERCOT wanted a change, are you the guy who makes  
5       that decision?

6               THE WITNESS: Even some of the things that I  
7       probably have -- well I would work with my management in terms  
8       of --

9               THE COURT: I wasn't trying to say that you would  
10      circumvent the chain of command. But would it be in your job  
11      function to figure out in order to maintain safety, integrity,  
12      you pick your term, is that something that you would be  
13      involved in?

14              THE WITNESS: I would be involved in it. Yes.

15              THE COURT: Did you make such a recommendation  
16      during -- or on February the 15th?

17              THE WITNESS: No. I did not.

18              THE COURT: So your belief that it was always 2,000  
19      that was just it, you didn't make -- you didn't make a  
20      suggestion or weren't aware of the suggestion that said hey we  
21      need to move it from 2 to 4?

22              THE WITNESS: No we wouldn't. I did not make that  
23      suggestion.

24              THE COURT: Okay.

25              MR. CLARK: Will you bring up Defendant's Exhibit

1 427, please.

2 THE COURT: 427.

3 MR. CLARK: This has already been admitted, Your  
4 Honor, it's Docket No. 408-2.

5 THE COURT: Thank you.

6 MR. CLARK: And let's go to Slide 22.

7 BY MR. CLARK:

8 Q What does Slide 22 of Defendant's Exhibit 427 show with  
9 respect to prices hitting the cap before the PUC orders were  
10 entered?

11 A So that would be the blue line here is looking at the  
12 real time market, and you would have seen some instances,  
13 there were actually some that looks like on the 13th as well  
14 as during the morning of the 15th, where prices were at the  
15 \$9,000 level.

16 Q And you can see the line for February 16th and we're  
17 going to get to the adjustment that your team made. But  
18 anything sort of to right before that line of February 16th,  
19 anything to the left of that, that shows prices at the cap  
20 would be -- have nothing to do with the PUC order, correct?

21 A That's correct.

22 Q Let's talk about the PUC order.

23 MR. CLARK: Can we pull up Defendant's Exhibit 57,  
24 please.

25 BY MR. CLARK:

1 Q Are you familiar with this document?

2 A I am.

3 Q Did you actually help with some of the words that are in  
4 this document?

5 A I did.

6 MR. CLARK: Can we bring up Plaintiff's Exhibit  
7 160A.

8 And Your Honor, that's Docket 476, that's what  
9 Mr. Boldt and I raised for Your Honor this morning.

10 THE COURT: Got it. Thank you.

11 BY MR. CLARK:

12 Q What is Plaintiff's Exhibit 160A, Mr. Maggio?

13 A This is an e-mail from ERCOT staff over to folks at the  
14 Public Utility Commission and sharing and some of the edits  
15 that we had including some suggestions that I had made.

16 Q You didn't write it, but your name is on the CC, do you  
17 see that?

18 A Yes.

19 Q Okay.

20 MR. CLARK: Your Honor, we move to enter Plaintiff's  
21 Exhibit 160A.

22 THE COURT: Any objection?

23 MR. ALIBHAI: No.

24 THE COURT: All right. Thank you, it's admitted.

25 (PX-160A offered and received in evidence.)

1 BY MR. CLARK:

2 Q And that front page of that e-mail says, Dave suggested  
3 some edits, is that referring to you?

4 A It is.

5 Q And did you have some edits?

6 A I did.

7 Q Okay. Let's go to page 2 of Plaintiff's Exhibit 160A.  
8 And before we zoom in, can you see at the bottom of page 2, of  
9 Plaintiff's Exhibit 160A that there are some redlines?

10 A I can.

11 Q And there's none above that?

12 A Correct.

13 Q Okay.

14 MR. CLARK: Let's zoom in on the paragraph with the  
15 red lines, please.

16 BY MR. CLARK:

17 Q Are these redlined words in Plaintiff's Exhibit 160A the  
18 edits that you suggested?

19 A They are.

20 Q Nathan Bigby (phonetic) is an ERCOT attorney?

21 A Correct.

22 Q Okay. And Mr. Maggio, don't tell me anything you  
23 discussed with Mr. Bigby, but how -- and by that I mean what  
24 method of communication did you use to communicate your  
25 suggested edits to Mr. Bigby?

1 A We had done that via video conference.

2 Q Okay. So let's look at some of the changes you made. We  
3 can see that the original draft said that ERCOT was to ensure  
4 the system demand component of energy prices is \$9,000 during  
5 any interval in which firm load is being shed, do you see  
6 that?

7 A Yes.

8 Q And can ERCOT make the system demand component of energy  
9 prices \$9,000 during any interval in which firm load is shed?

10 A We didn't have any sort of capability within the systems  
11 to try and do that, no.

12 Q And you put in the language there in place of that,  
13 ensure that firm load that is being shed in an EEA level 3 is  
14 accounted for in ERCOT's scarcity pricing signals, correct?

15 A Yeah.

16 Q Why did you change that language?

17 A We had already began some conversations in thinking about  
18 how we could implement this knowing that there was potential  
19 for an order. And so I was primarily thinking about  
20 implementation that we weren't necessarily going to be able to  
21 set price when the firm load was being shed, but we could  
22 change some of the components of the reliability point price  
23 setter process.

24 The other thing that I also was thinking of in these  
25 edits is specifically to refer to EEA level 3. There are some

1 other conditions for more local problems that we could  
2 potentially ask for firm loads to be shed. So I thought it  
3 would be important to clarify that, that specifically of a  
4 condition that we were referring to that based on what I had  
5 heard was the expectation and desire with folks were looking  
6 to do.

7 THE COURT: Let me ask you, Mr. Maggio, when you're  
8 doing this, were you looking for a directive that would have  
9 you make a change to accomplish the goal but also you needed  
10 to be told what to do, is that what you're doing here?

11 THE WITNESS: Correct. We needed to be told what to  
12 do. And I also wanted the language that was there to be  
13 something that we could be -- that we could implement --

14 THE COURT: This was an engineer figuring out a  
15 solution to a problem, is that a fair statement?

16 THE WITNESS: Yes.

17 THE COURT: Okay.

18 BY MR. CLARK:

19 Q Now let's leave these redlines up on the screen, but if  
20 you have the binder in front of you there's Defendant's  
21 Exhibit 57 in there. Is Defendant's Exhibit 57 is the signed  
22 version of the PUC order, do you see that?

23 A I do.

24 MR. CLARK: And it's already been admitted in  
25 evidence. And I apologize Your Honor, I don't have the -- oh



1 I do. It's Docket 406 9.

2 THE COURT: I got it.

3 MR. CLARK: Okay.

4 THE COURT: Thank you.

5 MR. CLARK: Thanks.

6 THE COURT: No. I appreciate you doing that. It  
7 makes my life so much easier.

8 BY MR. CLARK:

9 Q So we can look at Defendant's Exhibit 57 and in  
10 particular this paragraph that starts pursuant to this  
11 authority on page 2 of Defendant's Exhibit 57.

12 MR. CLARK: No keep those redlines up on the screen  
13 please.

14 BY MR. CLARK:

15 Q So you have in your binder the signed order, we have on  
16 the screen your suggested edits. And can you tell by  
17 comparing the two whether your suggested edits made it into  
18 the signed version?

19 A Yes. it did.

20 Q And that allowed you to convey to your team as an  
21 engineer how we're going to do this?

22 A Right. So now we can move forward and we thought we had  
23 something that we could implement that was what we thought  
24 folks were trying to accomplish.

25 Q Are there other differences between Plaintiff's Exhibit

1 160A, the draft order on the screen, and Defendant's Exhibit  
2 57, the signed order?

3 A I believe there are some fairly minor differences, yes.

4 MR. CLARK: Let's pull on the Plaintiff's Exhibit  
5 160A on the screen, can we focus in on the paragraph that  
6 starts further at the top? And then let's highlight the words  
7 load exceeding 10,00 megawatts there.

8 BY MR. CLARK:

9 Q So do you see on the draft version that you had suggested  
10 edits to that -- now did ERCOT send that draft to the PUC?

11 A That was the e-mail that was sent over and that we were  
12 looking at.

13 Q Right. Okay. And so what ERCOT sent over to the PUC  
14 said in that introductory paragraph, load exceeding 10,000  
15 megawatts and what does Defendant's Exhibit 57 say in that  
16 same spot?

17 A It refers to 10,000 megawatts as well, but there's some  
18 edits in terms of how megawatts is spelled out primarily.

19 Q Does it look like the PUC changed load exceeding to more  
20 than 10,000 megawatts?

21 A Oh. Yeah. There is. So this entry is a little  
22 differently. It says ERCOT has directed transmission  
23 operators in the ERCOT region to curtail more than 10,000  
24 megawatts spelled out of firm load.

25 THE COURT: Since you're going to lead the witness.

1           Mr. Maggio, do you know how that came to be and why  
2           that change was made and what it means?

3           THE WITNESS: That change was made after we sent it  
4           so I --

5           THE COURT: So you have no knowledge whatsoever?

6           THE WITNESS: No. I wasn't part of making those  
7           edits.

8           THE COURT: All right.

9           MR. CLARK: And then if you'll look at the paragraph  
10          roman numeral I and we see if we can focus in on that. And  
11          then if we highlight in PX-160A you see there's a couple of  
12          sentences that say ERCOT has determined that this is due to  
13          the amount of reserves being held. And then another sentence  
14          after that. And then the ERCOT believe sentence if we can  
15          highlight that.

16          BY MR. CLARK:

17          Q     And do you see that language that's in Plaintiff's  
18          Exhibit 160A in Defendant's Exhibit 57 the signed version of  
19          the order?

20          A     No. It looks like those two sentences were removed  
21          before the final order.

22          Q     And if I asked you the same question that Your Honor  
23          asked you, do you have any idea why?

24          A     No.

25          Q     Okay. I want to talk about the implementation of the PUC

1 order that ERCOT did, okay?

2 MR. CLARK: Can we pull up Defendant's Exhibit 412?

3 BY MR. CLARK:

4 Q Can you see that on your screen or is it easier for you  
5 to look in your binder?

6 A This phone is my binder, so I have both.

7 Q Okay. What is Defendant's Exhibit 412?

8 MR. CLARK: And Your Honor, that is Docket No.  
9 285-16.

10 THE COURT: Thank you.

11 THE WITNESS: This was a market notice that was  
12 drafted up on the 15th and sent to market participants on the  
13 15th describing the implementation of the PUC order.

14 MR. CLARK: Your Honor, move to order Defense's  
15 Exhibit 412.

16 THE COURT: Any objection?

17 MR. ALIBHAI: No objection, Your Honor.

18 (DX-412 offered and received in evidence.)

19 MR. ALIBHAI: And I note that a similar version is  
20 already in evidence at DX-390.

21 THE COURT: Great. Thank you.

22 MR. CLARK: I thought so. We had a debate about --  
23 Sorry, Your Honor.

24 THE COURT: It's just fine.

25 BY MR. CLARK:

1 Q Well we have DX-412 up on the screen so we'll go with  
2 that. Mr. Maggio, did ERCOT explain to market participants  
3 how it was going to implement the PUC order?

4 A Yes. That was the intent of this market notice to  
5 provide detail in terms of how we were going to technically do  
6 it.

7 Q And if you look at the paragraph that starts with first  
8 the order requires, do you see that?

9 A Yes.

10 Q And beginning with the sentence, Ercot will implement the  
11 pricing outcomes, that language, can you describe for us in  
12 more general terms what it is that ERCOT did to implement the  
13 PUC's orders?

14 A So in the reliability deployment price setter process  
15 there is a number of we kind of had walked through the various  
16 components. And the many of the components the way they  
17 technically work is I mentioned the change inputs, when we are  
18 trying to account for reliability deployments, the way that,  
19 that is done is by effectively increasing the amount of demand  
20 that's trying to be met. The technical term within the  
21 protocol for that is that generation to be dispatched. And so  
22 we were going to be changing one of the existing components of  
23 the deployment price setter process, to effectively do that  
24 same thing with the amount that instructed firm load shed that  
25 we had.

1 Q Okay. And --

2 THE COURT: And Mr. Maggio, were you involved in  
3 writing this?

4 THE WITNESS: I don't think I was the original  
5 author but I did review it.

6 THE COURT: You did review it. Okay. So let's get  
7 to the sentence before it.

8 Can we highlight that please?

9 Now that came -- that came out of the order itself,  
10 correct?

11 THE WITNESS: The second part of the sentence was  
12 directly from the order. Yes.

13 THE COURT: Right. And ERCOT prepared the order,  
14 correct?

15 THE WITNESS: Yes. We were certainly involved in  
16 drafting it and providing edits to it.

17 THE COURT: Right. So you're effectively saying  
18 that you're relying upon an observation that is in fact simply  
19 a repeated statement in an order that ERCOT prepared and sent  
20 over to the PUC to sign?

21 THE WITNESS: We certainly helped author that -- I  
22 assume the commission also believed in their order.

23 THE COURT: Well if I told you that at least one  
24 Commissioner said that the reason you all wanted an order was  
25 because you wanted to move the 2,000 to 4,000 that would be

1 problematic, wouldn't it? Because you told me you never  
2 asked.

3 THE WITNESS: That's correct. We never asked for  
4 that.

5 THE COURT: All right.

6 Go ahead.

7 BY MR. CLARK:

8 Q The language that's used in the market notice that is  
9 Defendant's Exhibit 412, describes what ERCOT is doing as an  
10 administrative adjustment and then it talks about the  
11 generation to be dispatched value and how you're going to do  
12 that. Can we refer to what ERCOT did to implement the order  
13 as the quote administrative adjustment today so that we don't  
14 have to repeat all of those sentences explaining how you did  
15 that?

16 A Yes. I'll do my best to use that term.

17 Q Okay. The market notice says that your making -- the  
18 reason you're using the methodology of the administrative  
19 adjustment is to make use of the existing system  
20 functionality. Can you explain what that means?

21 A So the -- we on the fly we were not able to create a new  
22 component so we wanted to look at some of the existing  
23 components of the reliability to point price setter process.  
24 The one component that we ended up picking and that we refer  
25 to here is that real time block load transfer import. So that

1 was going to be the component where it kind of works in the  
2 way I was describing where a megawatt value entered there, for  
3 the purpose of the price adder process increases the amount of  
4 system demand that we're trying to meet.

5 THE COURT: So if we were talking to ordinary  
6 people, would we just say this is how we're going to make the  
7 plug?

8 THE WITNESS: I guess, that's a simple way to  
9 describe it.

10 THE COURT: Yeah. Thank you.

11 BY MR. CLARK:

12 Q There should be a demonstrative in your binder --

13 MR. CLARK: And it should be in everyone's I hope.

14 BY MR. CLARK:

15 Q -- that has --

16 THE COURT: I've got it. Thank you.

17 BY MR. CLARK:

18 Q Do you see a demonstrative that has sort of the circles?

19 A I do.

20 Q And I think is this what you mentioned earlier sort of  
21 summarizing how you explained the different components of  
22 pricing?

23 A Yeah. I think the orange bars here at the bottom more or  
24 less line up with the items I had walked through in the  
25 protocol section.



1 Q And so, you chose the block load transfer functionality  
2 of the RDPA in order to implement in the PUCT orders; is that  
3 what I heard you say?

4 A That's correct.

5 Q And by changing the input into the block load transfer,  
6 did that have any effect on the LMP?

7 A It did not.

8 Q And by changing the input value into the block load  
9 transfer, did that have any effect on the ORDC component of  
10 the price?

11 A It did not.

12 Q And by changing the block load transfer value, did that  
13 affect any of the other RDPA separate components?

14 A No, it was just that particular component of it.

15 Q So, of all the possible components in the ORDC and the  
16 LMP, why did you choose out of all of those the block load  
17 transfer component?

18 A So there were really only two that we could use or work  
19 from based on the type of effect that we were talking about,  
20 it was either going to be the DC time, which works very  
21 similarly from the actual pricing run component point of view  
22 and the block load transfer.

23 We ended up selecting the block load transfer  
24 because it was less likely to actually be utilized. It is an  
25 action that's available, but it's just not as frequent. So if

1 we were to make changes to it, it wouldn't interfere with the  
2 normal course of calculations.

3 Q Did you ever stop using the block load transfer component  
4 and change to a different component in implementing the PUCT's  
5 order?

6 A No. The block load transfer was the component that we  
7 stuck with in that implementation.

8 Q And did you ever make changes in how you actually input  
9 the block load transfer value in order to implement the order?

10 A We did.

11 Q Can you give us just a run through how that  
12 implementation changed?

13 A So when we had first done the implementation, we actually  
14 had IT staff that was on -- essentially on call working 24/7  
15 that was able to make manual updates to this value. So only  
16 the IT staff has access to do that.

17 And so we had folks who were watching the system  
18 operators in the control room. There's a display that they  
19 entered this information on and they were looking for updates  
20 to that value. And as they saw updates, they were making  
21 manual changes to the value in the system.

22 At some point to avoid any potential, you know,  
23 manual error or things of that nature, the IT staff developed  
24 essentially automated scripts to take that value off display  
25 and feed it into the system so that we didn't have to have

1       that same dependency of someone physically watching.

2       Q     And then did you later switch from that process?

3       A     We did. On the 17th -- so at that -- for both the  
4       implementation on the 15th and the automatic script, we were  
5       feeding in directly whatever the instructed firm load shed  
6       value was on that display.

7               On the 17th, we changed it to be not dynamic where  
8       it was -- essentially if there was any non-zero value that was  
9       being entered on that display, it would set the component to a  
10      static value of 20,000 megawatts.

11      Q     And why did you change to a static value of 20,000  
12      megawatts?

13      A     The concern that the people had been discussing  
14      internally is that, similar to the concern on the 15th, if we  
15      were plugging in just the exact amount of instructed firm load  
16      shed, there may be some point as things were starting to  
17      recover and get better and that instruction was reducing that  
18      we would be in a place that, although we were still  
19      instructing firm load shed, that the price would drop and be  
20      less than that value of loss load.

21               MR. CLARK: Can we pull up Defendant's Exhibit 479A  
22      and that is at Docket No. 474-1, Your Honor.

23               THE COURT: Thank you.

24      BY MR. CLARK:

25      Q     What is Defendant's Exhibit 479A, Mr. Maggio? And can

1 we -- yeah, it might be clearer to look at it in your binder.

2 A This is an email between me and my staff the evening of  
3 the 17th. I had sent an email sort of explaining the issue  
4 and concern that we were just talking about and sharing some  
5 of the pros and cons.

6 And I had sent an email to a number of the folks who  
7 would essentially help us in doing the implementation, as well  
8 as several members of the executive team about the concern and  
9 what we were looking to do.

10 Q So let's look at the bottom email on the screen where it  
11 says, "Hey, everyone."

12 MR. CLARK: Yeah -- no, that was fine. Yeah,  
13 perfect.

14 BY MR. CLARK:

15 Q So this is from you, right?

16 A Correct.

17 Q And you're following up with a group about a concern on  
18 implementation, right?

19 A Correct.

20 Q And if we go over to the next page, you sort of lay out  
21 at the top there sort of exactly what you just described, I  
22 think. Is that fair?

23 A Yes, the first two -- the first two paragraphs and the  
24 bullets sort of describe that process. Both the concern and  
25 what our process was going to be for making the change and the

1 implementation.

2 Q So if -- is it -- I'm not an engineer, but is it fair to  
3 say that the concern was you guys were looking at it and as  
4 instructed load shed went from, say, 10,000 megawatts to 1,000  
5 megawatts or 500 megawatts that the effect of the plug that  
6 you guys used with a 500 megawatt number would lead to a price  
7 other than 9,000?

8 A Correct. The -- it seemed that it was going to be very  
9 likely that as that number started to decrease, we didn't  
10 necessarily have a feel for what the exact number would be.  
11 But as you got down to, you know, four or 5,000 that there was  
12 a high probability that you'd see the prices drop below that  
13 value, the total price drop below that value of loss load.

14 MR. CLARK: Your Honor?

15 THE COURT: Mr. Maggio, let me come back to that  
16 email. When you were picking your number, and I'm reading  
17 your email. I just want a little context. It says, "I picked  
18 20,000, given that that's our highest amount of load shed."

19 Is that you saying that's the highest amount of load  
20 shed that we've seen during this event or --

21 THE WITNESS: Yes, that was the highest instruction  
22 that we had.

23 THE COURT: Got it. And do you know when that  
24 instruction was given?

25 THE WITNESS: Not exactly, sir. No.

1 THE COURT: Okay. All right, but sometime prior to  
2 the 17th and before the 15th; is that fair?

3 THE WITNESS: Well and things were already  
4 recovering here so I assumed it would have happened earlier in  
5 the event. Probably sometime the evening of the 15th or 16th,  
6 most likely.

7 THE COURT: All right.

8 THE WITNESS: But I don't know exactly when.

9 THE COURT: And so as you're in your email when  
10 you're describing, you know, I've noticed this and here's my  
11 proposed solution to a problem that I've worried about.

12 And I don't mean to put words in your mouth, but  
13 that's what I heard you say. Were you -- did you believe that  
14 you needed an instruction or a directive in order to do this?

15 THE WITNESS: We were discussing with the ERCOT  
16 management, but and I hadn't -- I didn't reach out to the  
17 Commissioners or I don't believe there's a formal request to  
18 the Commissioners to give us more direction on it.

19 THE COURT: I just -- I mean, you seem like you  
20 don't miss much. You are very careful in what you do. You  
21 knew you needed a directive the first time when you wanted to  
22 put in the plug, as I've called it.

23 Did you think you needed an instruction to do this?

24 THE WITNESS: That didn't -- I did not consider.

25 THE COURT: Okay, why not?

1 THE WITNESS: I guess the -- it was the way -- what  
2 would the best way to describe it be? It seemed to be the  
3 exact same concern that was raised on the 15th, so it seemed  
4 like they were just coming up with a change or implementation  
5 to solve the problem that was already identified.

6 THE COURT: All right, but you weren't relying upon  
7 the words of the order? You were just effectively saying I've  
8 still got the same problem, I just need to deal with it a  
9 different way?. Is that a fair statement?

10 THE WITNESS: We were trying to -- well, we looked  
11 at the words in the order. That was part of our discussion in  
12 terms of whether or not there was any concern doing this.

13 THE COURT: And who made that call?

14 THE WITNESS: I talked to my management before  
15 making that decision. So I had reached out and talked to  
16 Mr. Velman (phonetic) and I believe he had talked to others,  
17 too. But that's who I primarily communicated with on it.

18 THE COURT: Got it. You were getting ready to make  
19 the offer?

20 MR. CLARK: That's what I was going to do. Thank  
21 you, Your Honor.

22 THE COURT: Any objection to 479A?

23 UNKNOWN MALE: No objection.

24 THE COURT: All right thank you. It's admitted.

25 (DX-479A received in evidence.)

1 BY MR. CLARK:

2 Q If we go back to the first page of Defendant's  
3 Exhibit 479A and we can highlight the time of your email and  
4 who you sent it to. The first -- yeah.

5 (Pause in the proceeding.)

6 Q What was the time and date that you sent your email that  
7 identified the concern?

8 A So this was an email was on that Wednesday evening. So  
9 that's February 17th at 6:38 p.m.

10 Q And Mr. Magness is not included among the recipients is  
11 he?

12 A He is not.

13 Q And why didn't you include Mr. Magness?

14 A In drafting the email, I primarily focused on sort of my  
15 management and his peers, as well as the folks who would be  
16 involved in it. So I didn't think to include Mr. Magness.

17 Q Well who do you report to?

18 A I report to Mr. Ogelman.

19 Q And who does Mr. Ogelman report to?

20 A Mr. Magness.

21 Q And then you see above that email the email that Your  
22 Honor keyed in on which was your thoughts about what the right  
23 value would be was 20,000. What was the time of that email  
24 that you sent?

25 A That same evening at 6:50 p.m.



1 Q And then above that you have a response from Mr. Townsend  
2 and what time is his response?

3 A Just a few minutes after that at 6:56.

4 Q Did you have any idea, Mr. Maggio, at 6:38 p.m. or  
5 6:50 p.m. or 6:56 p.m. that Chairman Walker going to be at  
6 Taylor later that night?

7 A I did not.

8 Q Where were you on February 17th between 6:00 p.m. and  
9 7:00 p.m.?

10 A I was at my home in Austin.

11 Q Not at Taylor?

12 A I was not at Taylor.

13 Q Did ERCOT notify market participants that it was changing  
14 the block load transfer value component of the administrative  
15 adjustment?

16 A Yes, we did another market notice as a follow-up to what  
17 we had sent out on the 15th, describing the change  
18 implementation.

19 MR. CLARK: Can we bring up Defendant's Exhibit 517?

20 (Pause in the proceeding.)

21 BY MR. CLARK:

22 Q Is Defendant's Exhibit --

23 MR. CLARK: That's already been admitted, Your  
24 Honor, right?

25 THE COURT: It's 496-6.

1 MR. CLARK: Exactly.

2 BY MR. CLARK:

3 Q What was the primary purpose of this February 17th market  
4 notice that has been marked as Defendant's Exhibit 517?

5 A So we had spelled in a fair amount of detail how we were  
6 planning to implement the order on the 15th. And since we  
7 were changing that, we wanted to provide clarification in  
8 terms of the changes we were going to make.

9 There was also -- this was one of the -- a con that  
10 I had mentioned in my email in terms of how we reported out  
11 the information. The value that's entered into the system was  
12 going to be showing up in reporting that we do that talks  
13 about the deployment price that have processing components.

14 And so we wanted to notify them as well that that  
15 would be showing up in any of the reporting related to the  
16 deployment price (indiscernible).

17 MR. CLARK: And can we zoom in on the two  
18 paragraphs, the first starting with "in the previous  
19 implementation?"

20 Thank you.

21 BY MR. CLARK:

22 Q So the pair -- the first paragraph we're looking at here  
23 on Defendant's Exhibit 517, says, "in the previous  
24 implementation." And is that kind of discussing what you just  
25 talked about?

1 A Yes. I was trying to do a recap on the notice from the  
2 15th.

3 Q So the concern that you identified in your email, you're  
4 telling the market in the last sentence of that first  
5 paragraph that concern. Is that a fair way to characterize  
6 that?

7 A That's correct. It was trying to describe that  
8 probability that I was talking about earlier.

9 Q And then it states effective with -- what time -- strike  
10 that.

11 Mr. Maggio, what time did this implementation go  
12 into effect?

13 A It went into effect as the notice describes at 8:50 p.m.  
14 on the 17th.

15 Q And you were at your home in Taylor then?

16 A I was in my home in Austin.

17 Q Pardon me, Austin. I messed that up.

18 THE COURT: I'm sure you spend a lot of time in  
19 Taylor.

20 THE WITNESS: Most of these days, I do.

21 BY MR. CLARK:

22 Q And did you have any idea that Chairman Walker was about  
23 to arrive in Taylor or had just arrived around 9:00 p.m. on  
24 February 17th?

25 A I did not.

1 Q Now I want to focus in on the sentence that starts, "Once  
2 ERCOT is no longer" in the second paragraph. Do you see that?

3 A (No audible response.)

4 Q Now, Defendant's Exhibit 517 states and ERCOT put in  
5 there that once it was no longer instructing firm load shed,  
6 that it would set the block load transfer adjustment to zero.  
7 Did that happen?

8 A It did not.

9 Q Do you know why?

10 A There was discussion, I guess. I was not part of the  
11 discussion on it, but there was a change made between then and  
12 midnight to change our process.

13 Q And you have no personal knowledge of that because you  
14 were at home?

15 A I was not present for that.

16 Q You were not in the room, so to speak?

17 A Correct.

18 THE COURT: Was there a follow-up notice sent out?

19 THE WITNESS: There was notice sent out. It was  
20 sent out the next morning.

21 THE COURT: And when did ERCOT stop instructing firm  
22 load shed?

23 THE WITNESS: Right before midnight between 17th and  
24 18th.

25 THE COURT: And so, a notice came out?

1 THE WITNESS: I believe it was sometime after  
2 8:00 a.m.

3 THE COURT: Okay. So for roughly eight hours no one  
4 knew. Is that a fair statement?

5 THE WITNESS: They would -- it would have been seen  
6 in the reports technically, if folks were looking at it. But  
7 they would not have known why we had changed the  
8 implementation relative to this notice.

9 THE COURT: All right, thank you.

10 BY MR. CLARK:

11 Q Are you good to continue, Mr. Maggio because I'm going to  
12 go into some spreadsheets and that may take a little while and  
13 Your Honor is --

14 THE COURT: Mr. Maggio you're the one who is  
15 suffering all the pain. If you need a break, you just need to  
16 tell me.

17 THE WITNESS: I'm sure -- I'm okay to take a shot at  
18 the spreadsheets.

19 THE COURT: Okay.

20 MR. CLARK: Can we pull up Defendant's Exhibit 777  
21 and that is Docket No. 411-57, Your Honor.

22 THE COURT: Thank you.

23 (Pause in the proceeding.)

24 BY MR. CLARK:

25 Q Mr. Maggio, is there a way to determine which realtime

1 charges to Brazos emanate from the administrative adjustment  
2 ERCOT made to implement the PUC order and which charges do  
3 not?

4 A Yes, I think you can do those calculations.

5 Q Okay, how?

6 A The first step of that would be calculating what the  
7 prices would have been if not for the administrative  
8 adjustments. So you can essentially take that same piece of  
9 software that did the calculations in the first place and  
10 change the component that was the function of the  
11 administrative adjustment to zero it out for purposes of doing  
12 the price calculation.

13 Q What is Defendant's Exhibit 777 that we're looking at?

14 A This is a spreadsheet that my staff had put together  
15 doing those calculations. I believe this one is covering the  
16 February 15th through February 17th.

17 Q When did your team create this?

18 A I guess this set of calculations, I think, would have  
19 been in maybe late March or early April from when we looked at  
20 the 15th through the 17th.

21 MR. CLARK: Your Honor, did I neglect to move to  
22 admit Defendant's Exhibit 777?

23 THE COURT: You didn't neglect, you just haven't  
24 done it yet.

25 MR. CLARK: I move to enter Defendant's Exhibit 777.

1 THE COURT: Any objection?

2 MR. ALIBHAI: No objection.

3 THE COURT: It's admitted.

4 (DX-777 received in evidence.)

5 BY MR. CLARK:

6 Q Okay, I think you just told us when this was created.

7 Why was it created?

8 A There had been a, I think, a number of questions in terms  
9 of what the prices -- what the adder would have been if you  
10 removed the administrative adjustment. So there had been a  
11 request to put together those prices and we did that so that  
12 further analysis could be done.

13 Q Request from whom?

14 A I think the request would have come from my management  
15 specifically.

16 Q And do you know where they got their request from?

17 A For the 15th to the 17th? I don't know exactly where the  
18 request came from, no.

19 Q Okay. So -- let's get oriented to Defendant's  
20 Exhibit 777 and if you could just briefly kind of walk through  
21 each column and explain what it represents.

22 MR. CLARK: And are we able to zoom in? Let's zoom  
23 in kind of on the top row that has the names of the columns,  
24 please.

25 (Pause in the proceeding.)

1 BY MR. CLARK:

2 Q Okay, so what is Column A in Defendant's Exhibit 777?

3 A That --

4 THE COURT: Can I suggest a different way? Because  
5 you're going to go through a bunch of things that are totally  
6 irrelevant. Why don't you just let him explain?

7 MR. CLARK: Perfect.

8 BY MR. CLARK:

9 Q Mr. Maggio, can you please explain what -- how  
10 Defendant's Exhibit 777 works and what it is showing?

11 A Sure, so what we did is take the -- essentially the  
12 initial case that we had for each of these executions of SCED.  
13 And so you can see there's one row of information for each of  
14 the five minutes.

15 And if you would actually scroll a little bit to the  
16 left, what we have here is a number of cases where you see DB  
17 in the title of the column. That's referring to specifically  
18 the information in our production system.

19 So for example, looking at Column E, you can see  
20 DB\_BLT. That is what the block load transfer component was of  
21 the reliability point price entered that created the actual  
22 price step we produced in real time on that given day.

23 And in this particular case, this is reflecting that  
24 amount of instructed firm load shed you see, the value is  
25 19,000 megawatts.



1           There's also a number of columns that are titled  
2           rerun. And then they kind of have a partner for the columns  
3           that start with DB. And these are cases where we -- and I  
4           think Column I is a good example where we -- this is now we've  
5           changed the inputs to account for the administrative  
6           adjustment. And done a rerun of the pricing process to  
7           determine what the prices would have been otherwise without  
8           that adjustment.

9           Q     But Column I is the pricing Lambda?

10          A     Correct. So if we want to kind of talk about them in, I  
11          guess, in a little bit of order. So I think it's going back  
12          to some of what we were talking about earlier with the  
13          graphic. In Column G that is the System Lambda that is coming  
14          out of the dispatch engine.

15                 So that is just a -- that is sort of the base  
16          component of the L&P that's associated with the power balance.

17          Q     So, -- and I do want you just to walk through it, but I  
18          just want -- would Column B, be that price that comes out of  
19          SCED, irrespective of the ORDC and RDPA adders?

20          A     Correct. So Column G where it talks about dispatch  
21          that's directly out of the SCED and the top part of that graph  
22          that we were looking at before.

23                 And that's just historically a function of the same  
24          SCED that would produce the L&P and base points whatever that  
25          System Lambda was for that particular invoice.

1 Column H and I are essentially the original and then  
2 the rerun version of the System Lambda coming out of that  
3 second run that we do a SCED that creates the price adders.

4 In Column H that's the original value and you can  
5 see it goes to that value of loss load at 9,001. And when we  
6 zeroed out the adjustment for the block load transfer, you can  
7 see that adjustment between Column E and F where that 19,000  
8 value that was entered, now becomes zero.

9 The Column I is now the System Lambda coming out of  
10 that pricing run that we do.

11 The next column we have is Column J that is the ORDC  
12 price adder. So again that's something separate from --  
13 separate from the actual pricing run itself. It's not really  
14 effected by the administrative adjustment or the pricing run  
15 at all. But it is one of the three components that we need to  
16 determine the final price. So, we included that as well.

17 For Column K and L, one of the reliability  
18 deployments that included in the process is the emergency  
19 response service or ERS. In the March time frame, we actually  
20 had detected a software error where we had modeled that  
21 incorrectly in the pricing run process. And we actually did  
22 go through and do a price correction for that. Specifically  
23 that it impacted February 15th.

24 But at the time we were -- those were still the --  
25 needed those numbers because it hadn't necessarily been

1 corrected yet. We hadn't gotten that approval.

2 So in doing these calculations, we not only needed  
3 to account for the administrative adjustment but we also  
4 needed to account for that software error that we had.

5 So you see in Column K and L you have both what the  
6 original value was that created the prices in real time, as  
7 well as what the corrected value would be for that specific  
8 component.

9 And then Columns M and N, M is the actual  
10 reliability deployment price adder that we saw. Again, that's  
11 the one that was actually used in the real time pricing that  
12 went out on the 15th. And then N is what that deployment  
13 price adder would have been with the adjustments in the  
14 spreadsheet, both accounting for ERS, as well as accounting  
15 for the administrative adjustment.

16 Q Let me interrupt you one second, and I apologize. I want  
17 to make sure I understood what you said about Column M. That  
18 is the value of the reliability deployment price adder without  
19 the block load transfer in it?

20 A So that is Column N. N as in Nancy.

21 Q Okay. Thank you.

22 And what is Column M as in Mary?

23 A Column M is what the actual value was that was used in  
24 production that combined with the other prices had prices at  
25 that value of lost load at \$9,000 per megawatt hour.

1 Q So it would not -- that would not be -- there are values  
2 in M as in Mary that include more than just this one  
3 component, they would include -- to the extent they applied  
4 these other RDPA components?

5 A There were other reliability deployments that were in  
6 effect at the time. I think, of course ERS was being deployed  
7 as we talked about. You can it on the spreadsheet, but I  
8 believe we are also were deploying like the load resources,  
9 was one of the components that we talked through.

10 Things of that nature were also going on at this  
11 point in time.

12 Q Okay. Thank you.

13 And I interrupted you when you were at Column Nancy,  
14 so please continue.

15 A And so I talked about the Column N. The only remaining  
16 one was Column O and really all that's showing is the analysis  
17 was really focused on the change and the reliability of  
18 throwing price adders. That last Column O is simply what that  
19 difference is for each of the different intervals.

20 So, and Column M, minus Column N.

21 Q Okay. And I want to make sure I understood -- in words  
22 that I understand, Column J?

23 A Column J is referring -- that's just the ORDC price  
24 adder.

25 Q And does that adder come from the administrative

1 adjustment that ERCOT made to implement the PUCT order?

2 A No. Like the dispatch system Lambda, the ORDC price  
3 adders was not affected by -- have no certain bearing with the  
4 administrative adjustment.

5 Q Okay. That would have -- that results and is not  
6 affected by the administrative adjustment?

7 A The calculations are separate for the RDC price adders.

8 Q Thank you.

9 And then Column N, Nancy, you mentioned. That would  
10 reflect what the RDPA adder would have been without the  
11 administrative adjustment was made to implement the PUCT  
12 order; is that correct?

13 A That's correct.

14 Q Okay. Now, I didn't hear you say which column is the  
15 total settlement price without the administrative adjustment.  
16 Is it represented in any of these columns?

17 A Not directly. You'd have to do a calculation.

18 Q How would you determine for each interval on this  
19 spreadsheet what the real time settlement point price would  
20 have been without the administrative adjustment?

21 A So I guess as we talked about, the total prices take some  
22 of three different pieces, so you'd have to take three  
23 different columns. In this spreadsheet, that would be  
24 Column G, which is again that system (indiscernible) coming  
25 out of the dispatch. Column J is the RODC price that we were

1 discussing, and then finally, Column N would be the new adder  
2 with the administrative adjustment removed.

3 Q Would we be able to see on here if there were times that  
4 the settlement point price was at 9,000 without any adders at  
5 all?

6 A That would be available in Column G in the dispatch for  
7 something like that.

8 MR. CLARK: Okay. Can we scroll down to Row 479 in  
9 Column G? And could -- can we show the row numbers out to the  
10 left on the screen?

11 We can't see the row number that's on the far  
12 left-hand side of it.

13 MR. ALIBHAI: We can.

14 MR. CLARK: You can?

15 MR. ALIBHAI: Yes.

16 MR. CLARK: Ah, great.

17 THE COURT: Yes. So can I.

18 MR. CLARK: You can?

19 THE COURT: Yeah. This is 'cause Isgur stole all my  
20 good technology.

21 (Laughter.)

22 MR. CLARK: It's okay. Maybe I'll go down at lunch  
23 and lodge a complaint.

24 THE COURT: He took my new monitors and gave me the  
25 old ones, so it's --

1 MR. CLARK: Okay.

2 THE COURT: -- I've got it.

3 MR. CLARK: Well, thank you for the clarification.  
4 I apologize for the misunderstanding.

5 THE COURT: Not at all.

6 BY MR. CLARK:

7 Q Row 479 in Column G shows a price of 9,000. Do you see  
8 that?

9 A I do.

10 Q What does that tell you?

11 A That would have been a case where there was some offer  
12 for a generator that was participating in dispatch and they  
13 would have been the ones setting price. It had been driven by  
14 resource offer taking the System Lambda and the LMPs to the  
15 9,000 value in that dispatch run.

16 Q And what time is that?

17 MR. CLARK: Can we scroll over to see the columns to  
18 the left that shows the dispatch time, or the interval?

19 BY MR. CLARK:

20 Q What time is that interval for Row 479 on Defendant's  
21 Exhibit 777?

22 A So that would have been 7:40 in the morning on  
23 February 17th.

24 Q Load was being shut at that time?

25 A Yes.

1 Q And did ERCOT's administrative adjustment to implement  
2 the PUCT order have any effect on that settlement point price  
3 of \$9,000 in Column G, Row 479?

4 A It would not have.

5 Q Why is Row 479 \$9,000 in Column G, whereas Row 480 is  
6 \$9,001?

7 A Within the optimization, just to ensure that it can  
8 solve, even when it can't necessarily meet demand and supply,  
9 there's something called the "power balance demand group."  
10 And the highest value, that penalty price that comes out the  
11 optimization is actually set at 9,001, as opposed to 9,000,  
12 and the idea behind that is for when we actually run the  
13 optimization, people who are looking at prices could tell  
14 whether or not it was a function of an actual market  
15 participant offering at 9,000 that was driving it, versus  
16 whether or not it was at par balance.

17 So the one is just an indication to folks a little  
18 bit more about what's going on.

19 MR. CLARK: Can we pull up Defendant's Exhibit 778,  
20 and that is Docket No. 411-58.

21 BY MR. CLARK:

22 Q Are you able to see that on your screen, Mr. Maggio?

23 A I am.

24 MR. CLARK: Can we show the top row? Okay, perfect.

25 BY MR. CLARK:



1 Q What is Defendant's Exhibit 778?

2 A This is a similar work sheet that the team put together.  
3 It's formatted a little differently, but it's really the same  
4 calculations, but specifically looking at February 18th  
5 through 9:00 a.m. on the 19th.

6 MR. CLARK: Your Honor, I move to admit Defendant's  
7 Exhibit 778.

8 THE COURT: Any objection?

9 MR. ALIBHAI: No objection.

10 THE COURT: All right. Thank you.

11 It's admitted.

12 (DX-778 received in evidence.)

13 BY MR. CLARK:

14 Q Can you go through a similar explanation for Defendant's  
15 Exhibit 778 that you did for 777 because I know that some of  
16 the -- it doesn't have as many columns, and can you sort of  
17 explain why that is?

18 A Sure, yeah. It has many of the same columns. They're  
19 just sort of reordered. As you kind of start off on the left  
20 side of the screen, we again have the relayed information  
21 coming out of the production system themselves. Those again  
22 are the ones that start with the DB underscore. So in certain  
23 columns, C, D, E and F, that's the first System Lambda coming  
24 out of the dispatch. What the System Lambda was when we did  
25 that pricing run, what the reliability point price adder was

1 out of the original run of that, and then finally what the  
2 RODC price adder was, all coming out of what we had in the  
3 production systems.

4 And then, on the right-hand side is sort of all the  
5 rerun equivalents of that. For Column H we have a rerun of  
6 the System Lambda for the dispatch run. That really is just  
7 the exact same as what we have in Column Z, but it was  
8 included here. The numbers don't change because it really  
9 isn't affected by the administrative adjustment when we do  
10 that dispatch run.

11 But then we also have the I and J are the pricing  
12 Lambda -- I'm sorry, the System Lambda coming out of the  
13 pricing run after we removed the administrative adjustment.  
14 And then finally J is the reliability point price adder from  
15 that rerun.

16 I guess the columns that we didn't include, we did  
17 not specifically call out the change in that block vote  
18 transfer component. It was changed, it just wasn't  
19 necessarily captured in the spreadsheet. And then the other  
20 columns that aren't included are the ones related to the  
21 emergency response component. By the time we had gotten to  
22 the 18th, that service had been depleted, so it really wasn't  
23 relevant to the analysis and didn't need to be adjusted for.

24 Q What does Column D represent?

25 A So Column D is when we do the pricing run for the

1 reliability point price adder process, that is the System  
2 Lambda that came out of that extra run of SCED.

3 Q That would include the administrative adjustment ERCOT  
4 made to implement the PUCT's order?

5 A Correct. That is the one that included the  
6 administrative adjustment.

7 Q And Column I, what does it represent?

8 A Column I is the equivalent to Column B, where we've now  
9 -- since you've taken that block vote transfer component and  
10 changed it to zero, since you removed the administrative  
11 adjustment.

12 Q Okay. What is Column G?

13 A Column G is just a file name so when we're doing these  
14 re-executions of the process, we have to pull the files to run  
15 it through the system to do the calculation would change  
16 input, so that's just the name of the file. It's effectively  
17 just an online SCED referring to the fact that we're doing a  
18 rerun of SCED and then there's a time frame.

19 Q So this spreadsheet itself doesn't have all these massive  
20 formulas in it. It is pulling together these other reports,  
21 or these other runs that have been done to give you the  
22 summary?

23 A Correct.

24 Q Okay. When was DX-778, the spreadsheet, created?

25 A We would have done these calculations in early March.

1 Q Early March of what year?

2 A Early March of 2021.

3 Q Okay. And these -- do you recall at your deposition  
4 these spreadsheets were actually attached to some emails from  
5 back in those time frames; is that right?

6 A That's correct.

7 Q And why were you creating these spreadsheets in early  
8 March of 2021?

9 A There were questions again about what the prices would  
10 have been without the administrative adjustment, but  
11 specifically focused on that 33 hours between the 18th and  
12 9:00 a.m. on the 19th. And specifically there were questions  
13 of the Legislature in terms of what those prices would have  
14 been for that specific period of time.

15 Q Okay. Mr. Maggio, we saw in these two spreadsheets,  
16 Defendant Exhibit 777 and 778 that the administrative  
17 adjustment that ERCOT made to implement the PUC order, can be  
18 removed from the pricing runs, but what do you need to do next  
19 in order to do the match to see how that arithmetic affects  
20 Brazos' real time charges?

21 A So these are really just the change in prices. You'd  
22 actually have to run it through our settlement systems to see  
23 how that would have affected any of the actual statements that  
24 we'd be sending out to the market participants.

25 Q And did you have the rerun prices run through ERCOT

1 settlement system?

2 A Yes. They are provided to the settlements team and they  
3 did those calculations.

4 Q And do you know the mathematical result of those  
5 calculations?

6 A I don't know the number off the top of my head, but I  
7 think they're included in some of the materials that have been  
8 discussed.

9 Q I wasn't asking you to tell me, you know, six figures,  
10 but okay.

11 MR. CLARK: Let's pull up Defendant's Exhibit 403.

12 BY MR. CLARK:

13 Q What is Defendant's Exhibit 403, Mr. Maggio?

14 A This the joint stipulation that did the calculations  
15 looking at the change in real time statements between -- I  
16 guess, the 15th through the 19th.

17 MR. CLARK: Your Honor, it's of record in the  
18 proceeding, but I'd just go ahead and move to admit it into  
19 evidence.

20 THE COURT: Yeah, my inclination is that given that  
21 you-all can't really agree what it means, I think it's  
22 appropriate to do that, rather than just have it be an  
23 existing stipulation.

24 Counsel, do you have any disagreement?

25 MR. ALIBHAI: No, Your Honor.

1 THE COURT: All right. Thank you.

2 Admitted.

3 (DX-403 received in evidence.)

4 THE COURT: Mr. Parker is handing you a note.

5 MR. CLARK: Would it be okay if we took a break,

6 Your Honor?

7 THE COURT: Oh, of course. And do you want to just

8 -- do you want to resume -- and you tell me if it's enough

9 time -- 11:00 o'clock? Just 20 minutes.

10 MR. CLARK: I left my phone on the table. I don't

11 even know what time it is now.

12 THE COURT: It's 20 till.

13 MR. CLARK: That's fine with me.

14 THE COURT: All right. Then we'll be adjourned

15 until 11:00 o'clock.

16 THE CLERK: All rise.

17 (Recess taken from 10:41 a.m. to 11:01 a.m.)

18 AFTER RECESS

19 THE COURT: Give me just a second to get the

20 recording back up.

21 (Court and court personnel confer)

22 THE COURT: All right. Whenever you're ready.

23 So did we -- we hadn't yet resolved whether or not

24 we were going to offer the stipulation, or that's when we

25 broke. Are you still moving for the admission of the

1 Stipulation 403?

2 MR. CLARK: Yeah.

3 THE COURT: Just want to make sure. All right.

4 Any objection?

5 MR. ALIBHAI: No objection.

6 THE COURT: All right. Then it's admitted.

7 (DX-403 received in evidence.)

8 DIRECT EXAMINATION OF DAVID MAGGIO (CONT'D)

9 BY MR. CLARK:

10 Q Mr. Maggio, before we go to Defendant's Exhibit 403, I  
11 want to go back to the discussion we had about Defendant's  
12 Exhibits 777 and 778, the spreadsheets. Do you recall we just  
13 spent a while going through those?

14 A Yeah.

15 Q And which columns in Defendant's Exhibit 777 or 778  
16 account for market behavior changes in ERCOT if you're saying  
17 ERCOT never made the administrative adjustment?

18 A There is no adjustments that try and account for  
19 behavioral changes.

20 Q Why not?

21 A I suppose that it -- it would just be a -- I'm not  
22 exactly sure how to necessarily tackle that. I think there  
23 would be a number of things you would have to try and  
24 consider. There would be, you know, with the change in  
25 prices, what would all the individual market participants have

1       done, you know, how would our system operators have tried to  
2       respond to that change of behavior and so on. So it didn't  
3       really have any sort of clear way, from an engineering point  
4       of view, to come up with what that calculation would be and  
5       try and do that math.

6       Q     Can you know what prices would have been using those  
7       spreadsheets?

8       A     To the degree that there's likely to be some behavioral  
9       aspect of things that would have occurred differently if the  
10      prices had been different, no, those prices are really just  
11      looking at zeroing out that administrative adjustment and not  
12      trying to account for any sort of behavioral changes.

13      Q     All -- other than the block load transfer that had the  
14      administrative adjustment in it, you held all other variables  
15      constant.

16      A     Correct. We just changed that specific component and  
17      redid the calculations.

18               MR. CLARK: Okay. Can we pull up Defendant's  
19      Exhibit 403 and go to the second page? And let's just zoom in  
20      on the box. I don't want to ask you about any of the lawyerly  
21      words all around the box, I just want to focus on the math.  
22      Okay?

23      BY MR. CLARK:

24      Q     Can you sort of explain how the math worked? I think  
25      before the break you talked about you have to take these



1 prices from the settlements -- not from the -- from the  
2 spreadsheets and run them through settlements. Do you  
3 remember that?

4 A Yes.

5 Q And what happens when you run those numbers through the  
6 settlement system?

7 A So the -- you have to look at sort of the -- all of the  
8 individual days with those -- with that change in prices, and  
9 you could go back and -- and calculate what the statements  
10 would have been for the realtime market without that  
11 administrative adjustment, using that new set of prices.

12 Q And that -- when you say "what the statements would have  
13 been," you're saying, in the assumption that everything else  
14 is held constant and you don't try to model for market  
15 behavior, right?

16 A Correct. The only -- the only change was to -- to zero  
17 out that specific component of the block load transfer, that -  
18 - that administrative adjustment.

19 Q It's just the arithmetic of removing that.

20 A That -- that was all we did for -- for purposes of the  
21 calculations.

22 Q And which charges in Defendant's Exhibit 403, looking at  
23 this box here, do not emanate from the administrative  
24 adjustment ERCOT made to implement the PUCT orders?

25 A That would be the -- the middle row of statements that

1 says the realtime market statement amounts without the  
2 adjustment. Those -- that is the calculation of those  
3 statements with that adjustment taken out with the price  
4 calculations we did that we discuss in those spreadsheets.

5 Q Again, just no modeling of market behavior. If you had  
6 done that, those numbers would be different.

7 A Presumably so. Yeah, we did not attempt to do that --  
8 that calculation, looking at the behavioral.

9 Q Okay. So --

10 MR. ALIBHAI: Objection. Speculation.

11 THE COURT: I agree. I also think that he said I  
12 can't possibly know, and I think that's the honest answer.  
13 You can't. You don't know whether it would be different, you  
14 don't know whether it would be the same because you don't know  
15 what you would do. I got that.

16 BY MR. CLARK:

17 Q And then which charges in this -- in these numbers in  
18 Defendant's Exhibit 403 do result from the administrative  
19 adjustment ERCOT made to implement the PUC's order?

20 A If the -- it would essentially be that -- that last row  
21 of information there, so the -- the -- the difference between  
22 that top row, which is the -- the actual statements, and then  
23 the -- the middle row, which is the statements without that  
24 adjustment.

25 Q And it's -- there are columns, and that -- and what do

1       those represent?

2       A       And those are just the -- the way we do the realtime  
3       market settlement is it's done on a day-by-day basis, so it's  
4       just a breakout of the individual days covering where -- I  
5       guess the 15th through the 19th. So this would have been the  
6       -- the five days in which there would have been some  
7       adjustment being made.

8               THE COURT: And so, Mr. Maggio, just so I  
9       understand. So, if we -- let's -- let me just pick a day, so  
10      February 18th. Is that midnight one second through 11:59:59  
11      kind of thing?

12             THE WITNESS: Yeah. We've got -- we've got the full  
13      clock.

14             THE COURT: Got it, thank you.

15      BY MR. CLARK:

16      Q       And as far as timing on the front and the back, as far as  
17      the effect on February 19th or on February 15th, these would  
18      include the full day.

19      A       All -- all of the calculations here are statements  
20      looking at -- at full days because that's how we run that  
21      settlement process. It -- it doesn't break out specific  
22      intervals of the day.

23      Q       And the February 15th column, how many intervals was the  
24      administrative adjustment made on February 15th?

25      A       The -- the adjustment was made, I believe it was 10:15,

1 so it would have just been that last hour and 45 minutes where  
2 the adjustment would have been in effect.

3 Q And -- okay. So -- and then, similarly, for February  
4 19th, you've only removed the administrative adjustment  
5 mathematically in these, correct?

6 A Correct. Those are the calculations in those  
7 spreadsheets with the re -- the -- the different pricing was  
8 only through nine o'clock in the morning.

9 Q Okay.

10 THE COURT: Mr. Maggio -- and I'm assuming that, if  
11 I requested a specific time period, that it involves some  
12 work, but that can be reconstructed.

13 THE WITNESS: For an individual interval, do you  
14 mean, sir?

15 THE COURT: Uh-huh.

16 THE WITNESS: It's not clear that we can necessarily  
17 do that on all the calculations, and there's a lot of, I  
18 guess, interplay kind of across the hours of the day. So it's  
19 -- it is very -- quite difficult, I think, to break up the  
20 individual hours of the day.

21 THE COURT: Okay. And so, if I said I wanted  
22 something from -- I'm just making something up -- from  
23 midnight until five o'clock in the afternoon, you're just  
24 telling me that's really difficult to do?

25 THE WITNESS: That would be -- that would be more

1 complicated to do.

2 THE COURT: Okay. Thank you. Sorry.

3 MR. CLARK: Can we bring up Defendant's Exhibit  
4 410A?

5 And I apologize, Your Honor. This was a redacted  
6 version of 410, and I'm not sure if it has hit -- it is filed.  
7 Can someone share the Docket number? We'll get you the Docket  
8 number, if that's okay, Your Honor. So --

9 THE COURT: Okay. Bet I can find it.

10 MR. CLARK: -- we filed Defendant's Exhibit 410A.  
11 It is similar to what we looked at earlier with one of the  
12 Plaintiff's exhibits. We're -- we just redacted some personal  
13 information.

14 THE COURT: Okay.

15 MR. CLARK: And I guess we have 410 on the screen,  
16 but I'm going to --

17 MR. ALIBHAI: 477-1.

18 MR. CLARK: It's Docket 477-1.

19 THE COURT: Thank you.

20 MR. CLARK: So we can ...

21 (Pause in the proceedings.)

22 MR. CLARK: Okay. We don't have it to put on the  
23 screen. But we'll put it up, and let's just not show that  
24 phone number, please.

25 If it's okay with Your Honor, I'll use this 410 as a

1 proxy, but I'm going to move to enter the 410A.

2 THE COURT: I got it. With the representation that  
3 the only difference is the redaction, I can't imagine that  
4 there's a problem.

5 MR. CLARK: Thank you, Your Honor. I'll move to  
6 enter Defendant's Exhibit 410A.

7 THE COURT: Any objection?

8 MR. ALIBHAI: No objection.

9 THE COURT: It's admitted.

10 (DX-410A, ECF 477-1 received in evidence)

11 MR. CLARK: Oh, let's go back to the top, and let's  
12 do the top -- let's show the top without showing the phone  
13 number, please.

14 BY MR. CLARK:

15 Q Mr. Maggio, who is Sy Morti (phonetic)?

16 A Sy Morti is an ERCOT employee, one of the principals in  
17 the market operations area.

18 Q And prior to the PUC entering its order on February 15th,  
19 were people in the market contacting you about why the prices  
20 were where they were?

21 A I had gotten some questions from our participants asking  
22 questions about it.

23 Q And there are several other emails, maybe we'll see them  
24 later. But there were people on your team and you were  
25 discussing the fact that there was a misconception among

1 stakeholders that, if you have firm load shed (indicating),  
2 you just automatically go to VOLL. Is that a fair  
3 characterization?

4 A That was an -- I think an assumption that came up in some  
5 of the emails and questions that people asked.

6 Q And Mr. Morti is responding to an email you had sent him.  
7 But let's scroll down to your email.

8 (Pause in the proceedings.)

9 Q You were up at 5:22 a.m. on February 15th, Mr. Maggio?

10 A I was.

11 Q And what were you seeing, as far as prices?

12 A Prices were at the cap for some intervals, but there were  
13 some intervals already, I believe at this point, where, even  
14 though we had instructed firm load shed, that prices -- the  
15 total price was not necessary at the value of loss load.

16 Q And did you consider this to be antithetical to the ERCOT  
17 market design?

18 A I guess I would say the -- the systems were working as  
19 designed and as laid out in the protocol, but it did not make  
20 sense, I think, with the intent of where prices should be when  
21 we were shedding firm load.

22 MR. CLARK: And if you'd scroll to the next page of  
23 this email.

24 (Pause in the proceedings.)

25 BY MR. CLARK:

1 Q You reference that you were scaling the TexasAdmin.com  
2 website, looking at an old TAC workshop. I guess the  
3 discussion of the TAC workshop is on the page before.

4 Does the Texas Admin Monitor, at that time -- or did the  
5 Texas Admin Monitor regularly keep videos of ERCOT's TAC  
6 meetings?

7 A It did.

8 Q And if you'll turn to Defendant's Exhibit 780.

9 And just to be clear, those videos, they're available  
10 publicly.

11 A They are. I -- I just went online to go look it up to  
12 get some background information.

13 Q So you were online at sometime before 5:20 in the morning  
14 on February 15th, and you went and watched this TAC video?

15 A I did.

16 MR. CLARK: Okay. And can we bring up -- oh, we  
17 have it.

18 BY MR. CLARK:

19 Q What is Defendant's Exhibit 780?

20 A This, it looks like, is a transcript of that video  
21 recording from that -- that TAC meeting.

22 Q And that's the May 29th, 2014 TAC meeting that you  
23 mentioned in that email?

24 A Yes, that's correct.

25 Q And if you turn to the last page of Defendant's Exhibit



1 780, do you see that there is a certificate by a court  
2 reporter?

3 A I do.

4 MR. CLARK: Your Honor, we move to admit Defendant's  
5 Exhibit 780.

6 THE COURT: Any objection?

7 MR. ALIBHAI: Your Honor, I object. I believe this  
8 document is hearsay, it's not a party-generated document.

9 THE COURT: Any response?

10 MR. CLARK: Two responses. It's admissible under  
11 803(6), it's a recording of a regularly conducted activity.  
12 And three -- and second, in the initial pretrial documents  
13 laying out the parties' objections, they affirmatively state  
14 for this exhibit no objection.

15 THE COURT: All right. With respect to the --

16 MR. CLARK: And --

17 THE COURT: With respect to the second part, or I'm  
18 going to overrule -- or I'm going to -- I'm going to sustain  
19 the objection. I -- or that's just not -- it's not a valid  
20 response.

21 With respect to the 803(6) objection, I don't think  
22 that you have met the required predicate yet, and maybe you  
23 can. All you've done so far is to say, hey, you got online  
24 and you -- I mean, you said it appears to be a transcript.  
25 And he's the wrong witness if you're trying to go that

1 direction. But you know, I'm happy to let you to continue to  
2 try, but I'm going to sustain the objection at this point.  
3 But you can continue to try and lay the predicate if you can.

4 MR. CLARK: Sure.

5 BY MR. CLARK:

6 Q Mr. Maggio, in 2014, did ERCOT regularly conduct TAC  
7 meetings?

8 A It did.

9 Q And what are "TAC meetings"?

10 A "TAC" stands for the Technical Advisory Committee. It's  
11 -- it's one of our stakeholder groups, it's -- it's at the  
12 level right below the ERCOT board of directors. That -- that  
13 takes on various topics, including changes to the protocols.

14 Q And did ERCOT make it a practice to video record those  
15 TAC meetings?

16 A It did.

17 Q And did ERCOT hire an independent company to post those  
18 video recordings of those meetings online?

19 A They were available through that -- the Texas Admin  
20 company.

21 Q And is Defendant's Exhibit 780 a transcript of the May  
22 29th, 2014 TAC meeting?

23 A It is.

24 Q And has it been sworn to by a court reporter?

25 A I has been signed by a court reporter.

1 MR. CLARK: Your Honor, I now move to admit  
2 Defendant's Exhibit 780.

3 THE COURT: Any response?

4 MR. ALIBHAI: Your Honor, I'm going to renew my  
5 objection. I don't believe this witness has knowledge as to  
6 the certification of this transcript as an official  
7 transcript.

8 THE COURT: Yeah, I'm going to sustain the  
9 objection.

10 MR. CLARK: Okay.

11 BY MR. CLARK:

12 Q Mr. Maggio, what are "ancillary services"?

13 A Ancillary services are products that are procured in our  
14 day ahead market. They are some form of reserve capacity on -  
15 - on generation, or it could be load resources or -- or  
16 battery resources, as well, that they physically keep out of  
17 the electricity market generally, unless there are certain  
18 things that -- that trigger the use of them, some sort of  
19 reliability needs.

20 So, for example, regulation service is one of them. And  
21 that would be a case where, as we see sort of small deviations  
22 in frequency, we would deploy regulation and convert that --  
23 that reserve capacity into energy to help us balance system  
24 demand on the system.

25 MR. CLARK: Can we pull up Slide 4 of Defendant's

1 Exhibit 462, please?

2 And this was admitted earlier, Your Honor.

3 THE COURT: Thank you.

4 BY MR. CLARK:

5 Q Do ancillary services represent available electricity?

6 A It -- it's -- well, it's essentially electricity put in  
7 reserve to be used in -- for -- under special circumstances.

8 Q And is there a physical capacity of a power plant behind  
9 that?

10 A Correct. So it's -- it's essentially the -- it is  
11 physical capacity that's removed from the energy market, so  
12 that it could be used and converted as an option, if -- if one  
13 of these things were to -- these triggering conditions were to  
14 happen.

15 Q There were some questions to previous witnesses, and  
16 there was a suggestion, I believe it was that you might be  
17 able to answer this, so: How do ancillary services get paid?

18 A So, as I mentioned before, they are procured in our --  
19 our day ahead market. So, within the day ahead market, any  
20 eligible resource would -- would offer in to provide them, and  
21 -- and that would be the function in -- in which they're  
22 cleared. I guess it may be relevant there, they are co-  
23 optimized in our day ahead market with energy, so both -- can  
24 offer to provide both, and we'll find the most economic way to  
25 both meet the demand that we're -- or balance demand that

1 we're trying to in the day ahead market, as well as meet the -  
2 - the ancillary service plan that essentially is the total  
3 amount that we've said that we need for a given operating day.

4 THE COURT: And so are you paid the same, whether  
5 you provide the capacity or not?

6 THE WITNESS: There -- there is actually some  
7 charges in realtime, depending on -- on what happens. So you  
8 -- you get the capacity payment to -- to reserve that capacity  
9 in the day ahead market. If something happens between then  
10 and -- and the actual realtime -- so, for example, the -- the  
11 unit that was planning to provide that service tripped offline  
12 and the -- the entity doesn't have another resource within  
13 their portfolio to balance that, then they would actually get  
14 a -- essentially called a "failure to provide," and they would  
15 get a clawback of any payments that they've received.

16 And then there's, I guess, another component to that  
17 --

18 THE COURT: Right.

19 THE WITNESS: -- sorry to interrupt you there --  
20 where, to the degree it's converted into energy to ensure that  
21 the entity isn't sort of paid twice for the same capacity,  
22 there is a -- there's an imbalance charge for any -- for any  
23 megawatts that are converted into energy.

24 THE COURT: Got it. All right. Thank you.

25 MR. CLARK: Can we pull up Defendant's Exhibit 587,

1 please? And that is Docket Number 411-8, Your Honor.

2 THE COURT: Thank you.

3 BY MR. CLARK:

4 Q Mr. Maggio, what is Defendant's Exhibit 587?

5 A This is an -- an other binding document that we have  
6 within the ERCOT rules, and it's specifically a methodology  
7 document that lays out how we do the calculation of the  
8 operating demand curve reserve levels, as well as the  
9 associated prices.

10 MR. CLARK: Your Honor, I move to admit Defendant's  
11 Exhibit 587.

12 THE COURT: Any objection?

13 MR. ALIBHAI: No objection.

14 THE COURT: It's admitted.

15 (DX-587, ECF 411-8 received in evidence.)

16 BY MR. CLARK:

17 Q Before I get into this, let me ask you a followup  
18 question on ancillary services payments. If you provide  
19 ancillary services, do you get an energy payment in addition  
20 to a capacity payment?

21 A No. I guess that's what I was trying to describe there  
22 towards the end. To the degree it -- it gets converted into  
23 energy, so that you can't get paid for that same capacity  
24 twice, there is an invalid charge that occurs separate from  
25 the day ahead. It's in the -- the realtime market settlement.

1 MR. CLARK: Okay. Let's go back to Exhibit 587.

2 Q This is -- I think we talked about this at the very  
3 beginning. This is that ORDC, the method that you used, it is  
4 other binding document. It's not in the protocols, but it is  
5 a binding document as part of the market rules?

6 A That's correct. There's a number of these, they're  
7 called "other binding documents," that are supplemental to the  
8 ERCOT protocol.

9 Q So, on top of the big binder of protocols there, there's  
10 even more documents that you have to go to for the market  
11 rules.

12 A There are more on top of that, yes.

13 MR. CLARK: Okay. If we can go to Page 9 of  
14 Defendant's Exhibit 587.

15 BY MR. CLARK:

16 Q And I just want to look at Page 9 for reference, so you  
17 can see the section number. What is that Section 2.2.1?

18 A So this is the specific section and the methodology where  
19 we describe how we calculate the -- the amount of ORDC  
20 reserves. In the title here, R, little case S -- or lowercase  
21 S is referring to the online ORDC reserves and the R-S-N-S is  
22 referring to the total reserves, if you also include some  
23 resources that are offline now, but could be started very  
24 quickly.

25 MR. CLARK: Okay. And if we can go to the next

1 page.

2 BY MR. CLARK:

3 Q Do you see at the top there is an explanation of a  
4 calculation and it has "except for the following"?

5 MR. CLARK: I'm -- let's get it up there.

6 Q Can you explain what this provision of Section 2.2.1 of  
7 the ORDC other binding document means?

8 A Yeah. So the -- one of the first components in doing  
9 that calculation is looking at the total online avail --  
10 capacity of all the online generation, that -- that -- that  
11 capacity values referred to the high sustain limit or HSL.  
12 And so this is coming up with the what's the total capacity to  
13 start from before we start backing out things like the amount  
14 of system demand we see.

15 Q And what does that second black bullet point down there,  
16 "on RUC," what is that referring to?

17 A There are some certain types of resources that we  
18 exclude, and -- and one of the ways this exclusion occurs is  
19 through the status of that resource. In -- in that particular  
20 case, one of the things that we remove for doing this reserve  
21 calculation is any resource that ERCOT has instructed through  
22 that out-of-market commitment, the reliability unit commitment  
23 or RUC process. Anyone who is brought online through that and  
24 is showing that status, as a function of that commitment, is  
25 excluded from that calculation.



1 Q So what effect does that have on the ORDC reserves?

2 A That -- I guess it effectively means that, to the degrees  
3 there -- the HSL is smaller, that -- that total online  
4 capacity is reduced by any commitments that ERCOT has made.  
5 And that would tend to reduce the -- the total number of  
6 reserves that we have on the system for purposes of this  
7 calculation and the price adder.

8 MR. CLARK: Can we pull up Defendant's Exhibit 484,  
9 please? Oh -- never mind. Yeah, 484. And we've looked at  
10 484 before, and it's already been admitted, Your Honor.

11 THE COURT: Yes, sir.

12 BY MR. CLARK:

13 Q Mr. Maggio, what is Defendant's Exhibit 484?

14 A This is a display that we have, and it's based off a  
15 report that we give to the PUCT. It's looking at the -- the  
16 current load and level load reserves, as well as the future  
17 forecasted load and -- and expected reserves, based on  
18 resource availability information that they're currently  
19 providing.

20 Q You're familiar with this report?

21 A I am.

22 Q Okay. Where on Defendant's Exhibit 484 can we see a  
23 point in time of actual load, not forecasted, where there was  
24 48,000 megawatts of load?

25 A Well, all of the information to the left of -- there's

1 sort of a break in there about a quarter into the -- to the  
2 graph. Everything to the left of that is what had been actual  
3 data, as opposed to forecasted. And the -- the red line  
4 represents load. It's -- it's moving around a little bit.  
5 But it looks like at around 2 or so in that -- the morning of  
6 the 18th, there was somewhere around forty-seven, 48,000  
7 megawatts of load.

8 Q Okay. It's hard to see that, this screen, and tie that  
9 all the way over. But let's assume there's 48,000 megawatts  
10 of load, is where you're looking. Okay? Is that -- can you  
11 tell because you know where the calibrated numbers here on the  
12 right -- I can barely see them.

13 A They're a little clearer in my printout, so ...

14 Q And you know the incrementation of those because you're  
15 familiar with this report?

16 A It would vary. I'm just -- I'm able to read it in the  
17 printout, it's -- it's clear enough on the printout.

18 Q Okay. So you can see on Defendant's Exhibit 484 that  
19 there is -- there was actual load on the system on February  
20 18th, around 2 a.m., of about 48,000 megawatts?

21 A Yes. It's -- it's in that range.

22 Q And can you tell, roughly, at that same time how many  
23 megawatts of online generation capacity there was?

24 A The -- the total amount of online generation is -- should  
25 be reflected at the top of that -- that green bar. So, if you

1 look, I suppose, around 2 a.m., it's around 54,000 or so.  
2 Again, kind of varying. It was just increasing right before  
3 the actual timestamp there.

4 Q Okay. So, if -- how do you determine -- if there's  
5 54,000 megawatts of online generation capacity and 48,000  
6 megawatts of load, how do you determine what the ORDC reserves  
7 are?

8 A One of the -- the main components, there's -- there's  
9 obviously several kind of components to this as we saw in that  
10 methodology document. But the -- the main component is that  
11 total capacity or the total online HSL of that fifty-four  
12 minus whatever the actual load is at that time. So it would  
13 really be just -- in general terms, the difference between  
14 those two values.

15 Q Okay. So there would be 6,000 megawatts of available  
16 reserves?

17 A Approximately 6,000, yes.

18 Q Now, if ERCOT RUCed 4,000 megawatts at that time period,  
19 what happens to the price of energy under the ORDC code?

20 A As -- as we were discussing in the -- in the methodology  
21 document, the -- anything that was RUCed would have been dis-  
22 accounted, so the -- actually, that top of the green line  
23 would have been reduced for purposes of the -- the price  
24 calculation to show only 2,000 megawatts of reserves. And you  
25 know, if it was exactly at that level or -- or -- or something

1 near it, you'd see prices in total going to the VOLL between  
2 the ORDC and the system lander from the dispatch.

3 MR. CLARK: Your Honor, may I approach the board  
4 again?

5 THE COURT: Of course.

6 BY MR. CLARK:

7 Q So, if I understood what you just said -- and let's hope  
8 I can -- if you had 6,000 megawatts of available reserves at 2  
9 a.m. on February 18th, and you RUCed 4,000 megawatts of  
10 generation, would you end up at this point on the ORDC code  
11 for 2,000 megawatts of reserves?

12 A Yeah. The ORDC -- the ORDC calculation would -- would  
13 have removed those 4,000. That -- that entire capacity is  
14 ignored. And so you'd see something more like 2,000 megawatts  
15 of reserves on the system.

16 Q And if there's 2,000 megawatts of reserves on the system,  
17 what is the value of energy?

18 A The -- the total price would go to that value of lost  
19 load based on the ORDC.

20 Q And that has nothing to do with the RDPA.

21 A That's the -- that calculation is separately before the  
22 reliability point and price adder.

23 Q Now that assumes a 4,000 megawatt RUC. What if you RUCed  
24 everything?

25 A If the value was greater than 4,000, at that point, it

1 wouldn't really have made a difference by the time -- once  
2 it's removed, I -- you would see the value of lost load  
3 between the ORDC and the System Lambda [sic], so that the  
4 price wouldn't really change at that point.

5 Q You would -- once you get to 2,000 megawatts of reserves  
6 by RUCing units, anything -- anything more that you RUC after  
7 that, you're still going to be at VOLL.

8 A Correct. It would -- removing that capacity would simply  
9 shift the level of available reserves further to the left.

10 Q So RUCing everything affects the price and can drive it  
11 to VOLL.

12 A It can, through -- through both the ORDC and the  
13 reliability point and price adder process.

14 MR. CLARK: Pass the witness, Your Honor.

15 THE COURT: Thank you. Nice job.

16 Mr. McKane, any questions?

17 MR. MCKANE: I do have a few.

18 THE COURT: Okay.

19 MR. MCKANE: And Your Honor, I have binders that --  
20 sometimes, I don't know why. I'll probably use one or two of  
21 the exhibits, but I'll -- if you'll give me a moment, I'll  
22 pass them out.

23 THE COURT: Of course.

24 (Pause in the proceedings.)

25 MR. MCKANE: May I approach the witness?

1 THE COURT: Certainly. Thank you. I only need one  
2 of them. Thank you.

3 (Pause in the proceedings.)

4 CROSS-EXAMINATION OF DAVID MAGGIO

5 BY MR. MCKANE:

6 Q Good morning, Mr. Maggio.

7 A Good morning.

8 MR. MCKANE: For the record, Mark McKane, Kirkland &  
9 Ellis, on behalf of Calpine Corporation. I just have a few  
10 followup questions.

11 BY MR. MCKANE:

12 Q Early in your -- in your testimony -- and this is just a  
13 point of clarification -- you made a reference to the  
14 systemwide offer cap, one of the documents, and it was the  
15 acronym "SWCAP," right?

16 A I believe it was in that -- one of the presentations that  
17 we looked at earlier.

18 Q Right. And just -- if you could -- could you confirm for  
19 the Court. What's the relationship -- strike that.

20 Are you familiar with the term "H cap"?

21 A Yes, I am.

22 Q Okay. Can you explain what the relationship is between  
23 the systemwide offer cap and the H cap?

24 A Yeah. So they're -- the systemwide offer cap is -- has  
25 potential to -- to change its level, depending on certain

1       circumstances that may happen in the market. In general, the  
2       -- the systemwide offer cap is set equal to the H cap, but  
3       there are some conditions in which it can be set to a  
4       different value.

5       Q     Okay. It's yin [sic], but normally it's set to the H  
6       cap. Is that -- did I hear that correctly?

7       A     Correct, yes.

8       Q     And what is the H cap -- is this -- you said "VOLL" a few  
9       times, "value of lost load," right?

10      A     Yes.

11      Q     What's the relationship between H cap and VOLL?

12      A     The -- the value of lost load is set equal to the  
13      systemwide offer cap, so, to the degree, I suppose, they'd all  
14      be equal to one another in -- in a general sense, although  
15      that can be different depending if those other circumstances I  
16      mentioned have been met.

17      Q     And just for the purposes of this trial, you understand  
18      that the focus has been, during the time of Winter Storm Uri,  
19      what was the systemwide off -- what was VOLL and H-cap set at.

20      A     They were all set at \$9,000 per megawatt hour.

21      Q     All right.

22             (Pause in the proceedings.)

23      Q     You -- there were discussions of Defendant's DX-777, the  
24      analysis you did to rerun the administrative adder. Do you  
25      recall that?

1 A Yes.

2 Q And then there's a separate spreadsheet, I believe, where  
3 you did the same calculation with regards to the settlement  
4 statement. Is that right?

5 A There was no spreadsheet that we shared with that, but  
6 there -- there was a process that they took the prices that my  
7 team calculated to run through the settlement statements for  
8 those affected days that we were looking at.

9 Q All right. And just -- and then you had a colloquy with  
10 Mr. Clark about whether that -- either of those analyses  
11 impacted market behavior. Do you recall that? Or  
12 incorporated any in -- any changed market behavior. Do you  
13 recall that?

14 A Yes.

15 Q I believe, when you were discussing that, you were  
16 talking about your spreadsheet. Does your answers about  
17 market behavior also apply to the settlement statements?

18 A They would be related.

19 Q There was no adjustment made with regards to the  
20 settlement statements. You have all that constant as well?

21 A Oh, the -- the settlement statements were based off of  
22 the -- the price calculations in those spreadsheets, so  
23 they're -- to the degree we did not account for any sort of  
24 behavioral changes in the -- in the pricing recalculations,  
25 they would not have been accounted for in the settlement



1 calculations.

2 Q So said another way, the work you did on the spreadsheets  
3 then flows into what is then presented in the settlement  
4 statements. Is that fair?

5 A Correct. I mean, we -- we shared the -- our -- our --  
6 our numbers with the -- the settlements team to do -- do their  
7 calculations.

8 Q Okay. All right. Sir, in your binder is a document  
9 that's marked DX-467.

10 MR. MCKANE: It's ECF Number 408-28. Can we have  
11 that brought up and put on the screen?

12 And for the record, I'm -- I believe DX-468 is a  
13 file that's labeled:

14 "ERCOT Historical Realtime ORDC and Reliability  
15 Deployment Price Adders and Reserves 2021."

16 BY MR. MCKANE:

17 Q Sir, do you recognize this Excel file?

18 A I do.

19 Q I'm not going to ask you to explain all of it or even a  
20 large part of it. But could you identify which part of this  
21 Excel file reflects the reserves that you testified about with  
22 Mr. Clark?

23 A So that would be specifically to the ORD -- ORDC  
24 reserves, that is in -- I'm trying to see the number here --  
25 that would be in Columns G and H. G would be referring to the

1 -- that R-T-O-L-C-A-P, that's the online capacity. And then  
2 in Column H is the amount of offline capacity that was  
3 available.

4 Q All right. And sir, is -- am I -- can you just explain  
5 at a high level like what each of these rows reflects? And  
6 these the five-minute intervals coming out of SCED, and then  
7 additional data?

8 THE COURT: Excuse me.

9 A Yeah, it looks there has been some filtering, so it's  
10 really showing just the data for the -- it looks like the top  
11 of each hour. But typically, the data shows for all of the  
12 different intervals that occurred throughout the day.

13 Q All right. But if I -- but to the extent that you wanted  
14 to know what was the reserve level showing in your system  
15 during Winter Storm Uri, would this be a -- the type of Excel  
16 file you would look to?

17 A This is actually -- this is a report that we post that  
18 shows all of the -- the interested parties what all those  
19 different components would be for, either ORDC, as well as the  
20 reliability deployment price adder.

21 MR. MCKANE: Your Honor, I move DX-467 into  
22 evidence.

23 THE COURT: Any objection?

24 MR. ALIBHAI: No objection.

25 THE COURT: It's admitted.

1 (DX-467, ECF 408-28 received in evidence.)

2 BY MR. MCKANE:

3 Q And sir, if you could turn to the to the last tab of your  
4 binder, D -- and then it's labeled DX-816.

5 MR. MCKANE: And it's ECF Number 436-23. And if we  
6 could put that up on the screen, as well.

7 BY MR. MCKANE:

8 Q All right. Sir, did ERCOT do a series of analyses after  
9 the storm to kind of -- as part of its efforts to -- I'm going  
10 to use my words -- perform a root cause type of analysis of  
11 what happened?

12 A Yes.

13 Q All right. And I -- when I use "root cause analysis," I  
14 do not mean it in an engineering-specific sense of the word  
15 that sometimes -- I know it has a formal meaning.

16 A Right.

17 Q So you're just figuring out what happened, right?

18 A Yes. There were -- there was an analysis and reports  
19 done.

20 Q Yeah. And was part of that analysis an analysis of how  
21 much load was on the system and what the total load would have  
22 been, but for load shed, relative to generation?

23 A Yes. There was a question on trying to understand what  
24 the -- what the load would have been if not for the  
25 instructions from ERCOT.

1 Q And sir, is this Excel spreadsheet reflecting what the  
2 available generation was at various points in time during the  
3 event and what the estimated load would have been without load  
4 shed?

5 A Yes. That's what the calculations appear to show, both  
6 the -- the available gen, the load without the load shed, as  
7 well as and data looking at the actual load shed megawatts.

8 MR. MCKANE: All right. Your Honor, I move DX-816  
9 into evidence.

10 THE COURT: Any objection?

11 MR. ALIBHAI: No objection.

12 THE COURT: It's admitted.

13 (DX-816, ECF 436-23 received in evidence.)

14 MR. MCKANE: Thank you, Your Honor.

15 THE COURT: What are you -- what's being extracted  
16 from to pull that estimate?

17 THE WITNESS: The -- the primary way to do the  
18 estimate -- there was a couple of different of ways that folks  
19 looked at it -- was simply to just -- one would just simply  
20 use the instruction, and assume that that was more or less the  
21 amount that was done. There was some additional analysis,  
22 also --

23 THE COURT: All right.

24 THE WITNESS: -- trying to look at, essentially,  
25 proxy periods of what -- and try to sort of gauge what folks

1 would have been doing otherwise, if they had power, things of  
2 that nature.

3 THE COURT: Sure.

4 THE WITNESS: So it was a more in-depth statistical  
5 analysis.

6 THE COURT: Got it.

7 Was there a correlation between the two approaches?

8 THE WITNESS: I think they showed things similar,  
9 but I don't know that they were entirely in alignment with one  
10 another.

11 THE COURT: Okay. All right. Thank you.

12 I'm sorry.

13 MR. MCKANE: No, no. I just -- I apologize. I  
14 didn't hear you. Was the question was there a correlation  
15 between the two?

16 THE COURT: I was just trying to understand the  
17 approaches and how they worked and what they showed.

18 MR. MCKANE: I understand.

19 THE COURT: Yeah. I'm done. That's --

20 MR. MCKANE: Oh, no, no. I -- and I apologize. I  
21 just couldn't hear you.

22 THE COURT: Understood.

23 BY MR. MCKANE:

24 Q Could you turn to the document in your binder tabbed DX-  
25 496? Excuse me.

1 MR. MCKANE: And it is ECF Number 408-46.

2 Q Now, as part of that look-back, I believe that you  
3 testified about earlier, was there an analysis done within  
4 ERCOT identifying units that were available or -- and, to the  
5 extent they were not available, their outage or D rates during  
6 the storm?

7 A Yes. One -- one of the big questions was -- and it looks  
8 like -- I'm sorry. Something else is -- there's something  
9 different on this -- oh, I'm sorry. There it goes. It's just  
10 a -- it was just a different tab, and I apologize for that.

11 One of the big questions was resource availability and --  
12 and who had been on outage. And so things looked at were, of  
13 course, the generators and what they had submitted into our  
14 outage scheduler tool.

15 Q And is DX-496 that data, to the best of your knowledge?

16 A It looks like data that was -- essentially, that would be  
17 coming straight out of that -- that outage scheduler tool.

18 Q And if I wanted to talk to somebody at ERCOT about that  
19 information, what -- is it better to speak with Mr. Ogelman?

20 A I think that would be better.

21 MR. MCKANE: Okay. Your Honor, I move 496 into  
22 evidence.

23 THE COURT: Any objection?

24 MR. ALIBHAI: No objection.

25 THE COURT: It's admitted.

1 MR. MCKANE: All right.

2 (DX-496, ECF 408-46 received in evidence.)

3 MR. MCKANE: And then, finally, Your Honor, can we  
4 turn to Tab DX-527 -- 525 in the binder?

5 THE COURT: 525.

6 MR. MCKANE: And for the record -- sorry -- DX-525  
7 is also ECF Number 409-12.

8 THE COURT: Thank you.

9 BY MR. MCKANE:

10 Q Mr. Maggio, again, as part of that look-back assessment,  
11 did ERCOT prepare a report evaluating load reductions that  
12 occurred during the winter storm?

13 A It did.

14 Q And is this a presentation from the demand side working  
15 group as to that analysis?

16 A It is.

17 MR. MCKANE: Okay. Your Honor, I move DX-525 into  
18 evidence.

19 THE COURT: Any objection?

20 MR. ALIBHAI: Your Honor, I object to the lack of  
21 foundation. I don't know if he's established that this  
22 witness has anything to do with this document.

23 MR. MCKANE: I'm happy to establish that he was part  
24 of the overall team that looked at it. I'm happy to move it  
25 in with Mr. Ogelman, as well. But he is familiar with the

1 document as part of the overall group --

2 THE COURT: Why don't you just --

3 MR. MCKANE: -- and I can establish that.

4 THE COURT: Why don't you just lay the foundation?

5 MR. MCKANE: Happy --

6 THE COURT: It's a couple of questions.

7 MR. MCKANE: Happy to do that.

8 BY MR. MCKANE:

9 Q Mr. Maggio, as part of the overall ERCOT team as -- that  
10 was responding to inquiries, regulatory, legislative, and  
11 otherwise, were you -- I'm sorry. Strike all of that.

12 Were you part of the team at ERCOT management that did  
13 assist in responding to regulatory, legislative, and other  
14 inquiries?

15 A Yes, I was.

16 Q Okay. And as part of that working team, did you review  
17 some of the presentations before they went final?

18 A I did.

19 Q Okay. To the best of your recollection, do you know if  
20 you reviewed this presentation before it went final?

21 A I did. Carl Raish, who was the presenter and preparer of  
22 this, is a direct report of mine.

23 Q Thank you.

24 MR. MCKANE: Your Honor, now I renew my efforts to  
25 move 525 into evidence.



1 THE COURT: Any objection?

2 MR. ALIBHAI: No objection.

3 THE COURT: It's admitted.

4 MR. MCKANE: All right.

5 (DX-525, ECF 409-12 received in evidence.)

6 BY MR. MCKANE:

7 Q Now, if I wanted to ask someone about this -- the load  
8 reductions, are those questions I should reserve for  
9 Mr. Ogelman?

10 A Yes.

11 Q All right. I'll do that.

12 THE COURT: If he were given an option for every  
13 question, I bet he'd answer that answer and just --

14 (Laughter)

15 (Participants speak simultaneously)

16 MR. MCKANE: After 2 hours and 15 minutes.

17 THE COURT: Yeah.

18 MR. MCKANE: Your Honor, I'm going to reserve the  
19 opportunity to respond to questions on cross.

20 THE COURT: Of course.

21 MR. MCKANE: Thank you.

22 THE COURT: Thank you, Mr. McKane.

23 All right. Let me ask. It is almost lunchtime.  
24 I'll give you the same courtesy I always wanted. I hated  
25 people breaking up my examinations. Do you want to start

1 after lunch? Do you want to start now or do you want take a  
2 late lunch because you think you can get it all done? What  
3 would you like to do?

4 MR. SCHINFELD: If the witness is comfortable, I  
5 could probably proceed and we could take a later lunch.

6 THE COURT: How you feeling?

7 THE WITNESS: I'm comfortable with that.

8 THE COURT: All right. Go right on ahead. And it's  
9 still Ms. Ellig? Still Ms. Ellig?

10 MR. SCHINFELD: Yes.

11 THE COURT: All right. Thank you. And I'll get  
12 that switched over.

13 (Participants confer.)

14 MR. SCHINFELD: Thank you.

15 THE COURT: Thank you.

16 (Participants confer.)

17 MR. SCHINFELD: Good morning, Your Honor. For the  
18 Record, Seth Schinfeld from Kramer Levin for the Official  
19 Committee of Unsecured Creditors.

20 THE COURT: Thank you.

21 CROSS-EXAMINATION OF DAVID MAGGIO

22 BY MR. SCHINFELD:

23 Q Mr. Maggio, settlement point prices in ERCOT's realtime  
24 market are produced by SCED, correct?

25 A It is. It is a process that is done after the SCED

1 process.

2 Q And settlement point process -- excuse me -- settlement  
3 point prices are the sum of LMPs, any ORDC adder, and any RDPA  
4 adder, correct?

5 A That's correct.

6 Q And the RDPA is an adder that's triggered when a set of  
7 defined actions occur, correct?

8 A Yes.

9 Q And the specific triggers for the RDPA are set forth in  
10 ERCOT's protocols, right?

11 A They are.

12 Q And on the morning of February 15th, 2021, ERCOT declared  
13 various energy emergency alert levels, correct?

14 A Yes, they did.

15 Q And there are three energy emergency alert levels that  
16 ERCOT can declare?

17 A Correct, there are three different levels.

18 Q And on the morning of February 15th, ERCOT progressed  
19 from EEA Level 1 up to EEA Level 3, the highest energy  
20 emergency level, correct?

21 A Correct.

22 Q And after entering EEA3, ERCOT began to order firm load  
23 shed, right?

24 A Correct.

25 Q And that is ERCOT directed transmission operators to

1 curtail megawatts of firm load shed, right?

2 A Correct.

3 Q And firm load shed can only happen in EEA3, correct?

4 A There are some cases where firm load shed at smaller  
5 levels can be declared in a transmission emergency. So, if we  
6 saw very localized problems, there could be conditions outside  
7 of an EEA3, but it's -- it's much more localized than what  
8 would happen in an EEA3.

9 Q But firm load shed is not required in EEA 3, correct?

10 A It is not required, no.

11 Q And firm load shed is considered an out-of-market action?

12 A It -- broadly, yes.

13 Q And there were a number of intervals on February 15th in  
14 the midst of firm load shed when market prices for energy were  
15 clearing well below \$9,000 per megawatts hour in the realtime  
16 market, correct?

17 A That's correct.

18 Q And on February 15th, firm load shed was not a part of  
19 the RDPA process, right?

20 A Correct.

21 Q And because load shed was not a part of the RDPA process,  
22 it was not accounted for in calculating that adder, correct?

23 A Correct.

24 Q And I think you discussed this with Mr. Clark. But on  
25 February 15th, there was no switch in ERCOT's scarcity pricing

1 mechanism to bring energy prices to \$9,000 per megawatt hour  
2 automatically during firm load shed, right?

3 A Correct.

4 Q And that's a topic you discussed in emails that day?

5 A Correct.

6 Q And I think we looked at one earlier. And in the binder  
7 in front of you, you have DX-410.

8 MR. SCHINFELD: This, Your Honor, is a document that  
9 has since been redacted and will be filed on the Docket as  
10 410A. So I'll -- I think it's already been admitted in that  
11 form.

12 BY MR. SCHINFELD:

13 Q But Mr. Maggio, if you'd look at the bottom of the first  
14 page of DX-410, which is, again, the same as 410A.

15 THE COURT: Okay.

16 Q That's an email that you wrote on February 15th, 2021, at  
17 5:22 a.m., correct?

18 A That's correct.

19 Q And the subject line there is:

20 "Talking Points Regarding Prices Below 9,000 During  
21 Firm Load Shed."

22 Correct?

23 A Yes.

24 MR. SCHINFELD: And if we go to the second page of  
25 the document and the first two bullets on the page, if we can

1 zoom in on those.

2 BY MR. SCHINFELD:

3 Q And Mr. Maggio, this is you reporting to the recipients  
4 of this email that:

5 "The ERCOT market design has a process that is  
6 intending to counteract the pricing impacts of reliability  
7 actions, particularly during emergency events. This process  
8 was introduced with NPRR 626, which was implemented in 2015."

9 And that's a correct statement, right?

10 A That is.

11 Q And "NPRR" is Nodal Protocol Revision Request, correct?

12 A That's correct.

13 Q And in the second bullet you state:

14 "As approved and implemented, this process does not  
15 directly account for firm load shed that may occur part of EEA  
16 Level 3."

17 And that's a correct statement, right?

18 A It -- that is correct.

19 Q So, on February 15th, prices clearing at less than \$9,000  
20 per megawatt hour was in accordance with the ERCOT protocols  
21 then in effect, correct?

22 A Yes.

23 Q Now you discussed this with Mr. Clark. Months after  
24 Winter Storm Uri ended, the ERCOT protocols were amended to  
25 designate that firm load shed directed by ERCOT should be

1 included in the calculation of the reliability adder, correct?

2 A That's correct.

3 Q And pursuant to that protocols revision to the RDPA  
4 process, load reductions that are not directed by ERCOT are  
5 not to be included in the reliability adder calculation,  
6 correct?

7 A It is specific to what ERCOT is instructing.

8 Q And as discussed earlier, in the evening of February  
9 15th, 2021, the PUCT issued an order directing ERCOT to  
10 account for load shed, right?

11 A Correct.

12 Q And before the PUCT issued that order, you reviewed a  
13 draft of that -- the order?

14 A I did.

15 Q And you suggested some revisions to the language of that  
16 order?

17 A I did.

18 Q And we looked at that earlier, that was PX-160A. And  
19 your suggested edits made it into the final version of the  
20 order that the PUCT approved that day, correct?

21 A It did.

22 Q Now, after the PUCT issued its order on February 15th,  
23 ERCOT implemented manual changes to the RDPA that affected the  
24 calculation of realtime market prices, right?

25 A Yes.

1 Q And you had a role in that implementation.

2 A I did.

3 Q And what ERCOT specifically did, as you discussed with  
4 Mr. Clark, was input megawatts of firm load shed into an  
5 existing component of the RDPA that's supposed to account for  
6 block load transfer imports, correct?

7 A That's correct.

8 Q And as of that time, there was no component of the RDPA  
9 that specifically tracked or accounted for firm load shed.

10 A Correct.

11 Q And as of that time, on February 15th, as well, the  
12 actual value of the realtime block load transfer imports  
13 component was zero, correct?

14 A Correct.

15 Q And throughout the storm, it was zero, correct?

16 A I -- yeah. I am not aware of any instructions for block  
17 load transfers.

18 Q And as you discussed earlier, ERCOT issued a market  
19 notice on February 15th concerning its manual adjustment to  
20 the RDPA?

21 A Yes.

22 Q And you helped prepare that notice?

23 A Yes.

24 Q And that's what we looked at earlier as DX-412. And it  
25 is in your binder as PX-161. And that notice went out to the



1 market around 11 p.m. on February 15th. Is that right?

2 A That is correct.

3 Q And the implementation of the manual adjustment went into  
4 effect around 10:15 p.m. that evening, correct?

5 A That is correct.

6 Q And when ERCOT began feeding load shed values into its  
7 scarcity pricing mechanism on the evening of February 15th,  
8 realtime market energy prices with the adders went to \$9,000  
9 per megawatt hour as anticipated, correct?

10 A It did.

11 Q And ERCOT continued feeding actual load shed megawatt  
12 values into its system on February 16th and 17th, right?

13 A Up until the evening of the 17th, yes.

14 Q Right.

15 And at some point, an automatic script was created to  
16 input the load shed megawatt values?

17 A Correct. That occurred on the 16th, I believe.

18 Q Uh-huh. Now I think you discussed this with Mr. Clark,  
19 as well. But feeding actual load shed values didn't guarantee  
20 that energy prices would clear at the cap, right?

21 A They did not.

22 Q Because if with the adders set in place, if actual load  
23 shed fell below a certain threshold, energy prices could have  
24 cleared at less than \$9,000 per megawatt hour, correct?

25 A That's correct.

1 Q And by February 17th, you had a concern about continuing  
2 on with ERCOT's initial implementation of the PUCT's order,  
3 correct?

4 A Correct.

5 Q And you shared your concern with your colleagues?

6 A Yes, there are some emails about it.

7 Q And that includes, I think, the email we looked at  
8 earlier as DX-479. If you can actually turn to that document.

9 And as you discussed with Mr. Clark, the first page of  
10 DX-479 is an email from you sent at 6:38 p.m. on February  
11 17th. And it carries over to the next page of the exhibit.  
12 And your proposal in this email was to set the load shed  
13 amount for purposes of the pricing run at a static value of  
14 20,000 megawatts until such time that the load shed  
15 instruction amount drops to zero, correct?

16 A Correct.

17 Q And you picked 20,000 megawatts as the static value  
18 because that's ERCOT's highest amount of load shed, right?

19 A It -- it was the highest amount we had observed between --  
20 -- during Winter Storm Uri.

21 Q And you were proposing that value of load shed to  
22 guarantee cap pricing, right?

23 A Yeah. So, to the degree that there is an instruction,  
24 that the price would go to the -- the maximum amount.

25 Q And you were proposing that, so long as there was any

1 load shed still being instructed, anything above zero, the  
2 system would continue to be told that firm load shed was at  
3 the 20,000 megawatt level, correct?

4 A That the price adder process would be told that, yes.

5 Q And so, if the actual load shed was just 1,000 megawatts,  
6 ERCOT would still tell its system that there was 20,000  
7 megawatts of load shed.

8 A That's correct.

9 Q And ERCOT subsequently -- excuse me -- subsequently  
10 implemented the change you proposed in this email?

11 A It did.

12 Q And shortly after doing so, ERCOT also issued a market  
13 notice regarding the change, correct?

14 A Yes.

15 Q And that's the notice we looked at earlier as DX-517.  
16 And it's in your binder at PX-163, if you can flip to that.

17 And as discussed with Mr. Clark, per this market notice,  
18 starting at 8:50 p.m. on February the 17th, a static value of  
19 20,000 megawatts was, in fact, being inputted into the  
20 reliability adder, correct?

21 A That's correct.

22 Q And that again -- amount, again, did not reflect  
23 megawatts of firm load actually being shed at that time,  
24 right?

25 A That's correct. The -- the value was, I believe, less at

1       that -- at that point in time.

2       Q     Uh-huh. And the February 17th market notice said that  
3       the change to use that static value was going to be for time  
4       periods in which ERCOT is instructing firm load shed, right?

5       A     That's correct.

6       Q     And ERCOT stopped instructing load shed around midnight  
7       on February 18th, 2021, correct?

8       A     That's correct.

9       Q     And after midnight on February 18th, ERCOT continued  
10      inputting a 20,000 megawatt static value into the reliability  
11      adder, right?

12      A     Correct.

13      Q     It did so for all 24 hours on February 18th?

14      A     Yes.

15      Q     And for the first nine hours of February the 19th.

16      A     Correct.

17      Q     But those were not time periods in which ERCOT was still  
18      instructing firm load shed, right?

19      A     The -- no, the instruction had stopped.

20      Q     And I think you discussed this with Mr. Clark. You,  
21      personally, were not involved in the decision to continue to  
22      input a static load shed value into the RDPA after ERCOT  
23      instructed firm load shed had ended at midnight on the 18th,  
24      correct?

25      A     I was not part of those conversations, no.

1 Q And ERCOT also issued a market notice on February 18th?

2 A Yes.

3 Q And if you'd look at PX-190, which has been filed on the  
4 Docket at 400-40.

5 MR. SCHINFELD: And I'll note, Your Honor, that a  
6 similar version is already in evidence at DX-64.

7 THE COURT: All right. Thank you.

8 BY MR. SCHINFELD:

9 Q Mr. Maggio, this February 18th market notice says that  
10 ERCOT has -- this is in the paragraph at the bottom of the  
11 first page:

12 "ERCOT has authorized the transmission and  
13 distribution service providers to restore all load associated  
14 with the EEA that was declared."

15 Right?

16 A Correct.

17 Q And that's a correct statement, right?

18 A Correct.

19 Q ERCOT was no longer asking for any shedding of firm load.

20 A No, the instruction had ended.

21 Q Uh-huh. And the February 17th market notice we looked at  
22 a moment ago said that, once ERCOT is no longer instructing  
23 firm load shed, the adjustment will be set to zero, right?

24 A Correct.

25 Q But ERCOT decided to do otherwise?

1 A Correct.

2 Q And this February 18th market notice also states, in that  
3 last paragraph right in the middle:

4 "This market notice is to provide contemporaneous  
5 notification to market participants that ERCOT will continue  
6 adjusting the RTBLT import component of the realtime  
7 reliability price adder."

8 Right?

9 A Correct.

10 Q And the February 18th market notice was issued at about  
11 7:46 a.m. on the 18th?

12 A That is correct.

13 Q And between midnight and 7:46 a.m. on the 18th, ERCOT  
14 continued adjusting the block load transfer import component  
15 of the reliability adder by inputting a load shed value  
16 greater than zero, right?

17 A Correct.

18 Q And ERCOT first informed market participants that it was  
19 continuing its RDPA adjustment when this February 18th market  
20 notice came out?

21 A Yes.

22 Q So, for about eight hours on February 18th, ERCOT was  
23 making an adjustment that it did not tell market participants  
24 it would be making, correct?

25 A That's correct.

1 Q It was doing something inconsistent with its February  
2 17th notice.

3 A Correct.

4 Q And Mr. Maggio, I think you testified on direct that a  
5 way to determine what energy prices in ERCOT's realtime market  
6 would have cleared at in the absence of ERCOT's implementation  
7 of the PUCT orders would be to undo ERCOT's manual adjustment  
8 to the reliability adder, right?

9 A That's correct.

10 Q And in fact, ERCOT has performed those calculations to  
11 assess what energy prices in the ERCOT market would have been  
12 between February 19th, twenty -- February 15th and 19th, 2021,  
13 in the absence of ERCOT's manual adjustment, correct?

14 A Correct.

15 Q And those are the calculations you prepared in March and  
16 April of 2021, that you discussed with Mr. Clark?

17 A Those were those two spreadsheets, yes.

18 Q Yes. And those are DX-777 for the period of February  
19 15th to 17th, and 778 for the period of the last 33 hours.

20 A We had split those two into two different spreadsheets.

21 Q And just to confirm, I believe you discussed this with  
22 Mr. Clark, as well. ERCOT's recalculations of prices used the  
23 LMPs produced by SCED, right?

24 A Correct.

25 Q And those LMPs were generated by SCED throughout the

1 winter storm.

2 A They were.

3 Q And even when ERCOT was manually adjusting the  
4 reliability adder?

5 A Correct. And that -- that did not impact the ability of  
6 SCED to continue running.

7 Q Uh-huh.

8 (Pause in the proceedings.)

9 Q And Mr. Maggio, I'm going to ask you to look on the  
10 screen. I'm going to show you PX-319, which is filed on the  
11 Docket at 403-19.

12 THE COURT: Just so I don't lose track of it, did  
13 you intend on offering 190? You talked about it. I mean,  
14 it's already there. But since we referenced it, it seems to  
15 me --

16 MR. SCHINFELD: Yes, Your Honor. Thank you for the  
17 reminder.

18 THE COURT: All right. No, no, no. I just wanted  
19 to make sure I don't miss it.

20 Any objection?

21 MR. CLARK: My understanding is that it's the same  
22 as the Defendant's exhibit, so no objection.

23 THE COURT: That's the representation.

24 All right. On that basis, it's admitted.

25 (PX-190, ECF 400-40 received in evidence.)



1 THE COURT: My apologies for the interruption.

2 MR. SCHINFELD: Not at all, Your Honor.

3 BY MR. SCHINFELD:

4 Q And Mr. Maggio, I just wanted to confirm. I believe it  
5 is the same. But Mr. McKane showed you DX-467, when he was  
6 asking questions. And is PX-319 the same spreadsheet?

7 A It is the same. And then you can actually -- can see all  
8 of the rows here.

9 Q Uh-huh. And if we scroll to the top -- or at the top,  
10 you can see that the title of this spreadsheet is:

11 "Historical Realtime ORDC and Reliability Deployment  
12 Price Adders and Reserves, February 2021."

13 Correct?

14 A Correct.

15 Q And I just want to get your assistance in defining some  
16 of the acronyms in the column headers of this spreadsheet.  
17 And so let's just start with Column B, and that's the SCED  
18 timestamp. And that's just the timestamp that the SCED  
19 process was run, correct?

20 A That's correct.

21 Q And then the rest of the columns on this spreadsheet show  
22 the value of the variables that affect pricing calculations  
23 for each of the individual SCED intervals, right?

24 A Some of them are more high-level information. So, for  
25 example, the System Lambda is here again, as well as the PRC.

1 "PRC" stands for "physical responsive capability." That  
2 doesn't necessarily feed into those calculations, so it is a  
3 little bit more general. But outside of that, it's all the --  
4 the components and -- and final calculations.

5 Q Thank you for that clarification.

6 And you mentioned the System Lambda. And I just want to  
7 make sure the record is clear. "System lambda" is the load-  
8 weighted average of all LMPs across the ERCOT system, right?

9 A It -- it -- that's, I think, a fair description of it.

10 Q And you mentioned PRC, physical responsive capability.  
11 And that's a measure in megawatts of fast-responding reserves  
12 that can respond to frequency deviations?

13 A Right. It's -- it's our reserves that can specifically  
14 respond to frequency.

15 Q And Column F reads, "R-T-O-L-C-A-P." And that's the  
16 realtime online capacity?

17 A That is the -- the number of O-R -- online ORDC reserves.  
18 So that's not the total capacity; that's the -- the reserve  
19 number.

20 Q Uh-huh. And Column G, "R-T-O-F-F-C-A-P." That's  
21 realtime offline capacity?

22 A Correct.

23 Q And that's the amount of spare generation capacity that's  
24 offline, right?

25 A And that's the -- the offline ORDC reserves, yes.

1 Q Uh-huh. And then Columns K through U, those are all  
2 various inputs to the ORDC adder calculations, right?

3 A Would you mind zooming in a little bit?

4 Q Sure. And it's Columns K through U.

5 A I'm sure you're right. I just can't quite -- quite see  
6 it.

7 Q No, it's a little small on the screen. I understand.

8 THE COURT: So here, let me help you.

9 THE WITNESS: Oh, thank you very much.

10 THE COURT: Sure.

11 THE WITNESS: It actually starts with row -- it  
12 starts with Column J, would have been the first one that's one  
13 of the inputs. That's the realtime online HSL that we were  
14 talking about in the methodology document.

15 But then it does go through to Column U, does have  
16 through all the different components.

17 MR. SCHINFELD: Thank you.

18 And now, if we can move over to columns -- Column W.

19 BY MR. SCHINFELD:

20 Q And Columns W through AD, those are inputs for the RDPA  
21 or the reliability adder calc -- excuse me -- calculation?

22 A Right. Those were all of the inputs in the calculations  
23 for the reliability point price adder process.

24 MR. SCHINFELD: I just want to go to a specific row,  
25 so if we can move back to the lefthand side of this

1 spreadsheet. And I'd like to go to Rows 5623 and 5624. And  
2 those correspond to SCED intervals on February the 19th of  
3 2021.

4 (Pause in the proceedings.)

5 BY MR. SCHINFELD:

6 Q Can you see that, Mr. Maggio?

7 A Yes, I can.

8 Q And those SCED time stamps for these two rows are roughly  
9 4:30 p.m. and 4:35 p.m. on February 19th, 2021, correct?

10 A That's correct.

11 Q And the System Lambda for each of these two intervals is  
12 negative, right?

13 A That's correct.

14 Q And if you look at Column H for that row, the ORDC adder  
15 for each of these two intervals is zero, right?

16 A It is.

17 Q And then Column V, which is the RDPA, the value for each  
18 of these two intervals is also zero, right?

19 A I'm sorry, it hasn't scrolled over.

20 Q Sure.

21 A I don't see those columns yet. For columns -- so --

22 Q Column V.

23 A Column V? The data in Column V is zero. That's correct.

24 Q And I think as you discussed before, these three  
25 components added together -- so the System Lambda, the ORDC

1 adder, and the RDPA -- determine the average systemwide price,  
2 correct?

3 A Correct.

4 Q So, for each of these two SCED intervals that we were  
5 looking at on February 19th, 2021, the average systemwide  
6 price was negative, right?

7 A Correct, for those two SCED intervals.

8 Q And Mr. Maggio, you discussed ancillary services briefly  
9 with Mr. Clark. And again, just to clarify my understanding,  
10 an ancillary service is a reliability service procured by  
11 ERCOT?

12 A IT is a reliability service, yes.

13 Q And an ancillary service is its capacity that's reserved  
14 to allow ERCOT to respond quickly to changing system  
15 conditions, right?

16 A Yes.

17 Q And generators who offer ancillary services into the  
18 ERCOT market are paid to reserve capacity, right?

19 A Yes.

20 Q And those generators are paid whether or not they're  
21 actually called on to convert that capacity and deliver  
22 electricity to the grid.

23 A Correct.

24 Q And if power is needed and actually supplied by a  
25 generator who bids in ancillary services, the generator

1 receives a separate additional payment for delivering that  
2 electricity, correct?

3 A It varies as a -- you know, there is an energy payment  
4 that occurs in the realtime market.

5 Q And it's separate from the payment for reserving  
6 capacity, correct?

7 A Those are settled. The statements are separate between  
8 the day ahead market and the realtime market.

9 MR. SCHINFELD: All right, Your Honor. Subject to  
10 any recross, I have no further questions.

11 THE COURT: Well, it's -- why don't you read the  
12 note?

13 (Laughter)

14 MR. SCHINFELD: Certainly. Your Honor, we looked at  
15 PX-319, which I believe was already admitted into evidence as  
16 DX-467.

17 THE COURT: So --

18 MR. SCHINFELD: But I would ask to move PX-319 into  
19 evidence, as well.

20 THE COURT: So that we keep our record straight.  
21 Any objection?

22 MR. ALIBHAI: No objection. And I think the periods  
23 are different, so ...

24 THE COURT: So let's just -- we're offering 319, and  
25 we had some very specific questions. Any objections to 319?

1 MR. ALIBHAI: No objection.

2 THE COURT: Okay. Thank you. That's admitted.

3 (PX-319, ECF 403-19 received in evidence.)

4 MR. SCHINFELD: Thank you, Your Honor.

5 And one additional note. I'm told that DX-778 that  
6 Mr. Clark used during his examination may not have been moved  
7 into evidence. And if that is the case, I would ask to move  
8 it in at this time.

9 MR. CLARK: I appreciate Mr. Schinfeld looking after  
10 me like that.

11 (Laughter)

12 MR. CLARK: So I have no objection.

13 THE COURT: Oh, come on. Have some fun. Come up  
14 with something.

15 (Laughter)

16 THE COURT: Let me just -- 778. I thought that we  
17 did, but let me just check. So I had it being offered and  
18 admitted.

19 MR. ALIBHAI: Me, too.

20 MR. SCHINFELD: All right, Your Honor. Well, then  
21 that is perfectly fine with me.

22 THE COURT: Well, let's hope that I actually got  
23 that right, so -- but thank you for -- our goal is to all get  
24 it right, so thank you.

25 MR. SCHINFELD: Okay.

1 THE COURT: I always take all the help that I can  
2 get.

3 All right. Let me ask: Any Redirect?

4 MR. ALIBHAI: The Debtors --

5 THE COURT: Oh, I'm sorry. Right. We have the  
6 Debtors. Do the Debtors have any questions?

7 MR. ALIBHAI: Yes, Your Honor.

8 THE COURT: All right. Please.

9 (Participants confer.)

10 THE COURT: Mr. Maggio, are you still okay?

11 THE WITNESS: I am. Thank you.

12 THE COURT: Okay. Yes, sir.

13 MR. CLARK: Is there an estimate? Is there an  
14 estimate? I've got people asking me about lunch. I know the  
15 witness controls that. But is there an idea?

16 THE COURT: Fair question.

17 MR. ALIBHAI: I mean, now would probably be a good  
18 time for a break and I could narrow some of my cross and be  
19 more efficient afterwards.

20 MR. CLARK: I completely defer to the witness and to  
21 Your Honor, but --

22 MR. ALIBHAI: Yeah, I defer to both of you, as well.

23 THE COURT: No, of course. So let me just ask  
24 because, I mean, I'm fine. I'm just sitting and watching.  
25 You guys are doing all the work. If you -- and I'm not going



1 to put a stopwatch on you. How long do you think you have?

2 MR. ALIBHAI: Half an hour.

3 THE COURT: Redirect, based on what you know now?

4 MR. CLARK: We have some redirect. I suspect mine  
5 is --

6 THE COURT: Then let's do this. That's going to put  
7 you out another hour. And they -- lawyers always way  
8 underestimate time. Let's do this. Let's go ahead and take a  
9 lunch break.

10 I know -- I've always -- I mean, I've tried to give  
11 you two hours every day. I'm happy to continue that practice  
12 because you -- sometimes, you can really use it, and it also  
13 lets you both clear your head and prepare. I'm also happy to  
14 do it shorter. Tell me what -- tell me what you'd like to do?

15 (Participants confer.)

16 MR. ALIBHAI: I'm hearing 2:00 o'clock.

17 (Participants confer.)

18 THE COURT: Does 2:00 o'clock work?

19 (No audible response.)

20 THE COURT: Then we'll reconvene at 2:00 o'clock.

21 Thank you, sir. We'll be adjourned.

22 THE CLERK: All rise.

23 (Morning Session adjourned at 12:15 p.m.)

24

25

\* \* \* \* \*

I certify that the foregoing is a correct transcript to the best of my ability produced from the electronic sound recording of the proceedings in the above-entitled matter.

/S./ MARY D. HENRY

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